

July 2002

DRAFT Environmental Assessment

**Environmental Restoration
Palm River - Tampa Bypass Canal
Hillsborough County, Florida**



**U.S. Army Corps
of Engineers**
Jacksonville District

PALM RIVER RESTORATION
HILLSBOROUGH COUNTY, FLORIDA

DRAFT FINDING OF NO SIGNIFICANT IMPACT

I have reviewed the Environmental Assessment (EA) of the proposed action. This Finding incorporates by reference all discussions and conclusions contained in the Environmental Assessment enclosed hereto. Based on information analyzed in the EA, reflecting pertinent information obtained from other agencies and special interest groups having jurisdiction by law and/or special expertise, I conclude that the proposed action will have no significant impact on the quality of the human environment. Reasons for this conclusion are in summary:

- a. The proposed work would not jeopardize the continued existence of any endangered or threatened species. The standard State and Federal manatee protection conditions would be implemented. If a clamshell dredge is used, a special manatee observer equipped with video equipment would be used to monitor manatee impacts.
- b. The State Historic Preservation Officer concurred with the U.S. Army Corps of Engineers' determination that there would be no effect on sites of cultural or historical significance in the project area.
- c. State water quality standards will be met.
- d. The proposed project has been determined to be consistent with the Florida Coastal Zone Management Program.
- e. Measures to eliminate, reduce, or avoid potential impacts to fish and wildlife resources will be implemented during project construction. The District's Migratory Bird Protection Policy would be implemented.
- f. Benefits to the public will include the creation of 32 acres of high quality benthic habitat, 20.3 acres of wetland habitat and improved tidal flushing of the channel. These changes would improve the recreational fishery of the area.

In consideration of the information summarized, I find that the proposed action will not significantly affect the human environment and it does not require the preparation of an Environmental Impact Statement.

Date

JAMES G. MAY
Colonel, U.S. Army
District Engineer

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1 PURPOSE AND NEED FOR ACTION

1.1. Introduction:

The purpose of this project is to restore aquatic and wetland habitats and to improve water quality conditions in the Palm River. Severe flooding associated with heavy rains in the spring of 1960 prompted the development of the Four River Basins Flood Control Project, for the Oklawaha, Withlacoochee, Peace and Hillsborough River basins. Construction of the Tampa Bypass Canal and the Palm River were components of that project. When the Corps dredged Six Mile Creek which became the Palm River, the dredged material was placed in several sites adjacent to the river in the floodplain. Dredging and spoil disposal eliminated adjacent wetlands and aquatic habitats in and adjacent to Six Mile Creek.

1.2. Location.

The Palm River discharges into McKay Bay in the northeast of the Tampa Bay system (Figure 1). Prior to the 1920's, the two dredged channels now known as the Tampa Bypass Canal and the Palm River were a continuous channel known as Six Mile Creek (HDR Engineering 1994). Where it entered McKay Bay, the Palm River was about 650 feet wide. The river's channel width varied from 200 to 400 feet for about three-fourths of a mile upstream from the mouth before rapidly narrowing to less than 100 feet.

1.3. Authority.

The Tampa Bypass Canal, C-135, was authorized by the Flood Control Act of October 23, 1962 as part of the Four River Basins Project.

1.4. Decision to be Made

The decision to be made is which modifications to the Tampa Bypass Canal would improve water quality and yet preserve the flood protection capabilities.

1.5. Relevant Issues.

- a) Water Quality
- b) Water Circulation
- c) Hazardous, Toxic and Radioactive Waste (HTRW)
- d) Benthic Habitat
- e) Sea Grass Beds
- f) Manatees
- g) Birds
- h) Fisheries
- i) Wetlands
- j) Cultural Resources
- k) Aesthetics
- l) Recreation
- m) Economics
- n) Navigation

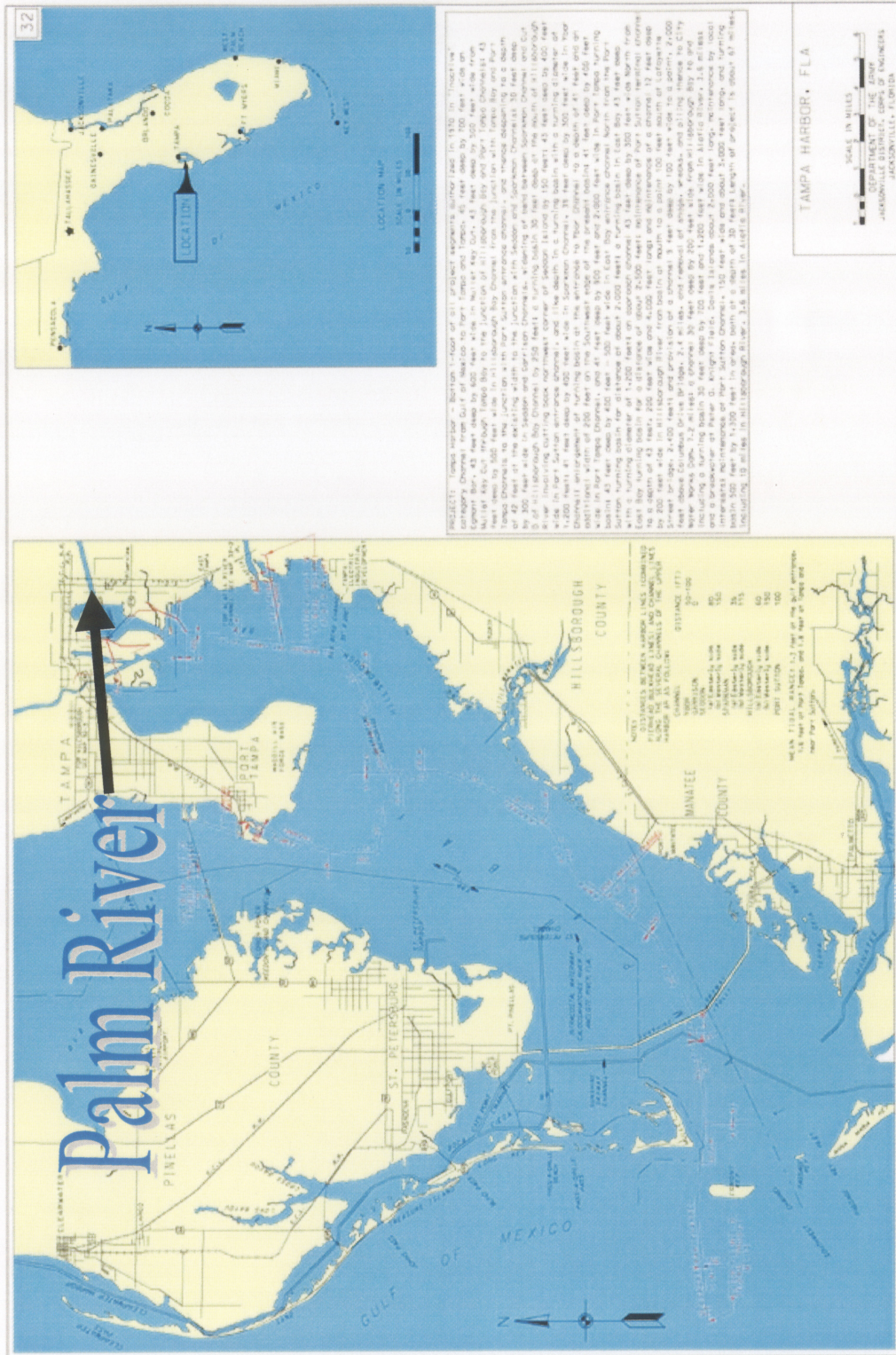


Figure 1, Location Map

1.6. Permits Required

A Water Quality Certification (WQC) will be required from the State of Florida. In addition, the State of Florida must provide concurrence in the Corps Coastal Zone Consistency Determination at various stages of planning. The final ascent to this determination is the issuance of the WQC.

1.7. Methodology

An interdisciplinary team used a systematic approach to analyze the affected area, to estimate the probable environmental effects, and to prepare the Environmental Assessment (EA).

2 ALTERNATIVES

2.1 INTRODUCTION.

This section is based on concerns for resources and impacts upon resources expressed in Section 3.00, Affected Environment, and Section 4.00, Environmental Consequences. The key to this section is the Alternative Comparison Chart (Table 1), page 8. The Alternatives section has five (5) parts:

- a. A description of the process used to derive alternatives.
- b. A description of the alternatives that were initially considered but later eliminated from detailed investigation.
- c. A description of each alternative.
- d. A comparison of the alternatives.
- e. Identification of the Preferred Alternative.

2.2 HISTORY OF ALTERNATIVE FORMULATION

The Palm River Management Committee prepared a report (HDR, 1994) looking at the project with recommendations to improve water quality. One assumption made in the report was that the current canal was over designed for the existing conditions and that the canal could be filled to an undetermined elevation. According to the report, this recommendation would alleviate some of the anoxic water quality and improve flushing. The Corps and the local sponsor, the Southwest Florida Water Management District, have consulted on various alternatives. A computer model was constructed and used to analyze the existing channel to determine what level of channel design was necessary to maintain flood benefits. A list of opportunities was presented for habitat restoration that included restoration of the upland dredged material maintenance areas located south of the channel on McKay Bay, wetland creation along the channel banks and littoral shelf creation within the channel. The following alternatives were identified:

- a. Filling the channel
- b. Restoring the upland disposal areas
- c. Underwater Berm Removal (Highway 41 Bridge)
- d. Partially filling the channel

- e. Wetland creation

2.3 ELIMINATED ALTERNATIVES

After the hydraulic model was used, it was determined that only a small portion of the channel could be filled. Therefore, filling the channel was eliminated. It was also determined that the upland disposal areas were still necessary to maintain the project, so this alternative was eliminated. Therefore, the Underwater Berm Removal, Partially Filling the Channel and Wetland Creation remained as viable alternatives. Combinations of these alternatives were used for comparison.

2.4 DESCRIPTION OF ALTERNATIVES

2.4.1 No Action Alternative.

The current channel with underwater berm would remain in place.

2.4.2 Underwater Berm Removal.

The berm beneath the U.S. Highway 41 bridge spans the length and width of the bridge. The elevation of the top of berm is approximately -5 feet NGVD. Removal will include the width of the berm, approximately 100 feet, covering approximately 400 feet or two-thirds of the bridge's length. It will be removed down to -20 feet NGVD with the bridge piers being stabilized with riprap if required. The dredged material would be placed in

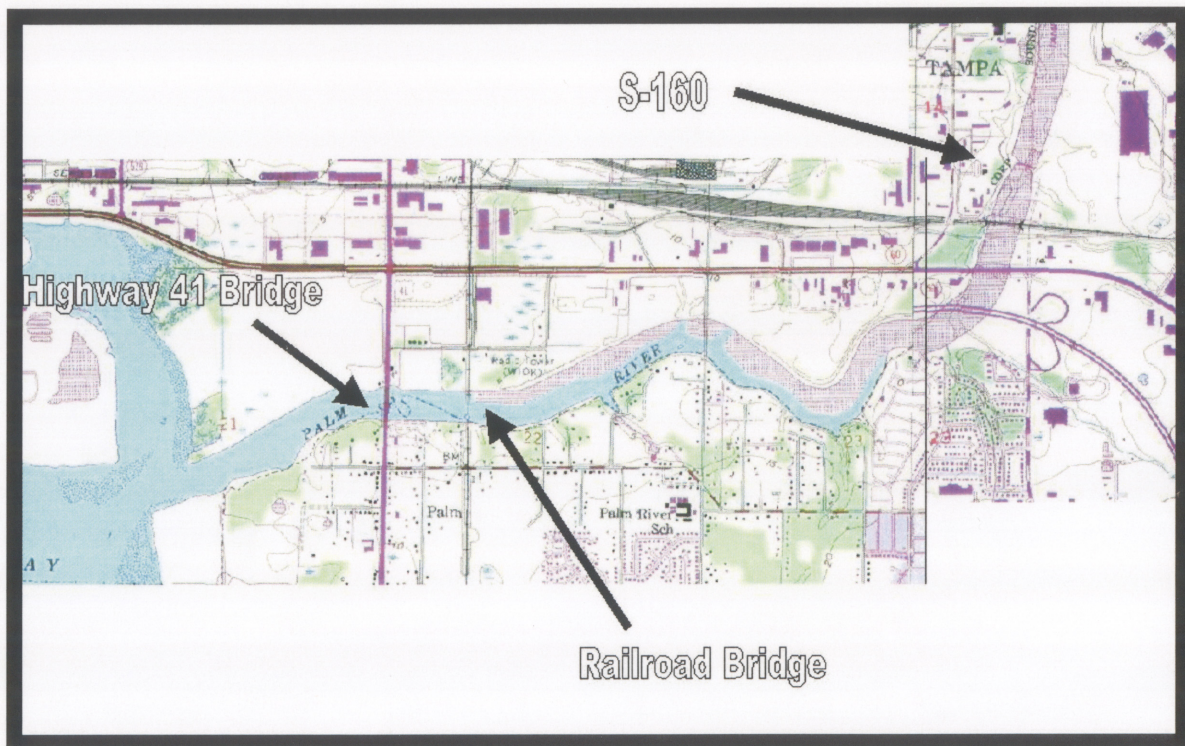


Figure 2, Site Map

the upland Dredged Material Management Area (DMMA) located near the mouth of the Palm River as it enters McKay Bay. If the placement of dredge material occurs during 1 April through 31 August a Migratory Bird Protection Plan would be implemented. Impacts on manatees would be mitigated by implementing a manatee protection plan which involves monitoring and avoidance.

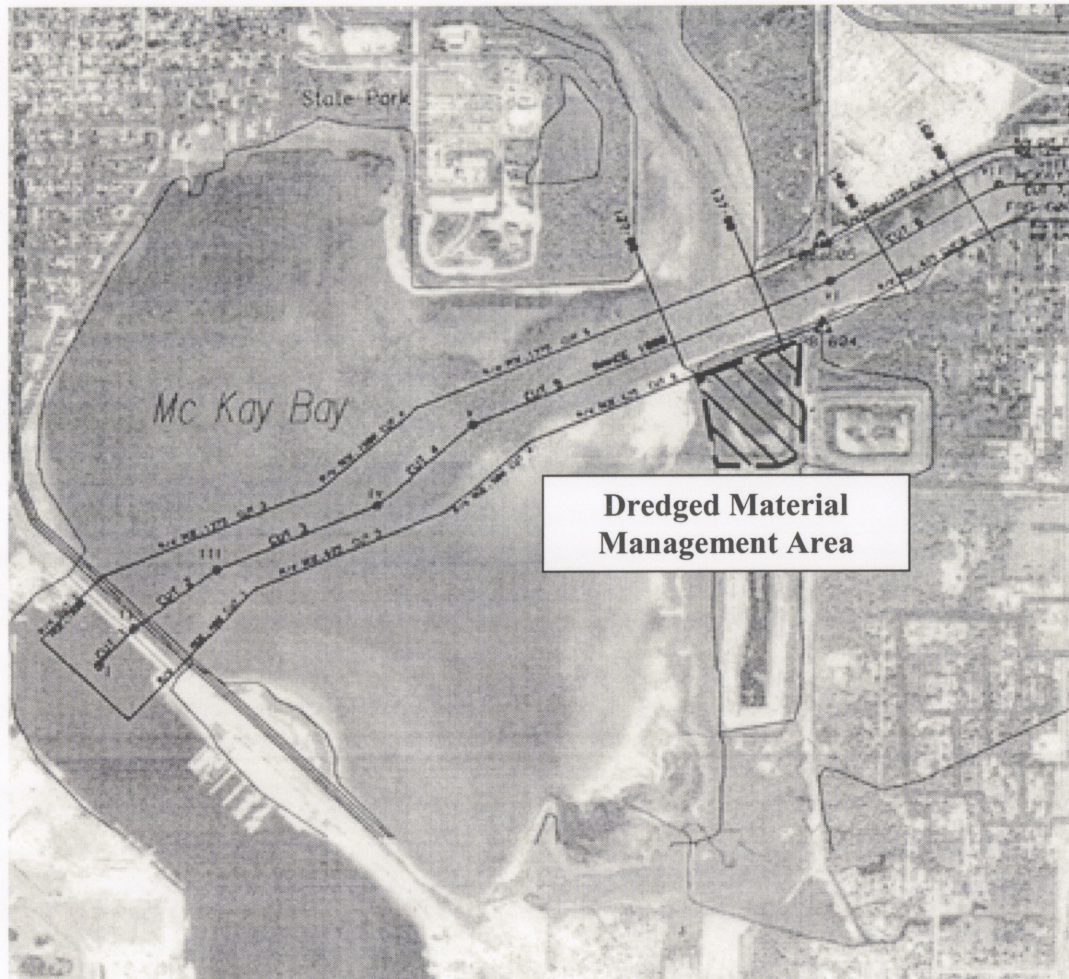


Figure 3, Upland Dredged Material Management Area

2.4.3 Underwater Berm Removal and Habitat Creation Site 1.

The berm beneath the U.S. Highway 41 bridge spans the length and width of the bridge. The elevation of the top of berm is approximately -5 feet NGVD. Removal will include the width of the berm, approximately 100 feet, covering approximately 400 feet or two-thirds of the bridge's length. It will be removed down to -20 feet NGVD with the bridge piers being stabilized with riprap if required. The potential restoration sites are shown in Figure 4. An area encompassing approximately 1 acre at Site 1 is proposed for restoration to a saltmarsh wetland area. The existing berms will be degraded and form a slope from elevation 0.0 to +2.0. This area will be planted with *Spartina alterniflora* and *Juncus roemerianus* to create the saltmarsh. The excess material will be placed in the channel on

a 1 to 4 slope to create a littoral shelf. The dredged material from underneath Highway 41 Bridge would be placed in the upland Dredged Material Management Area located near the mouth of the Palm River as it enters McKay Bay. If the placement of dredge material occurs during 1 April through 31 August a Migratory Bird Protection Plan would be implemented. Impacts on manatees would be mitigated by implementing a manatee protection plan which involves monitoring and avoidance.

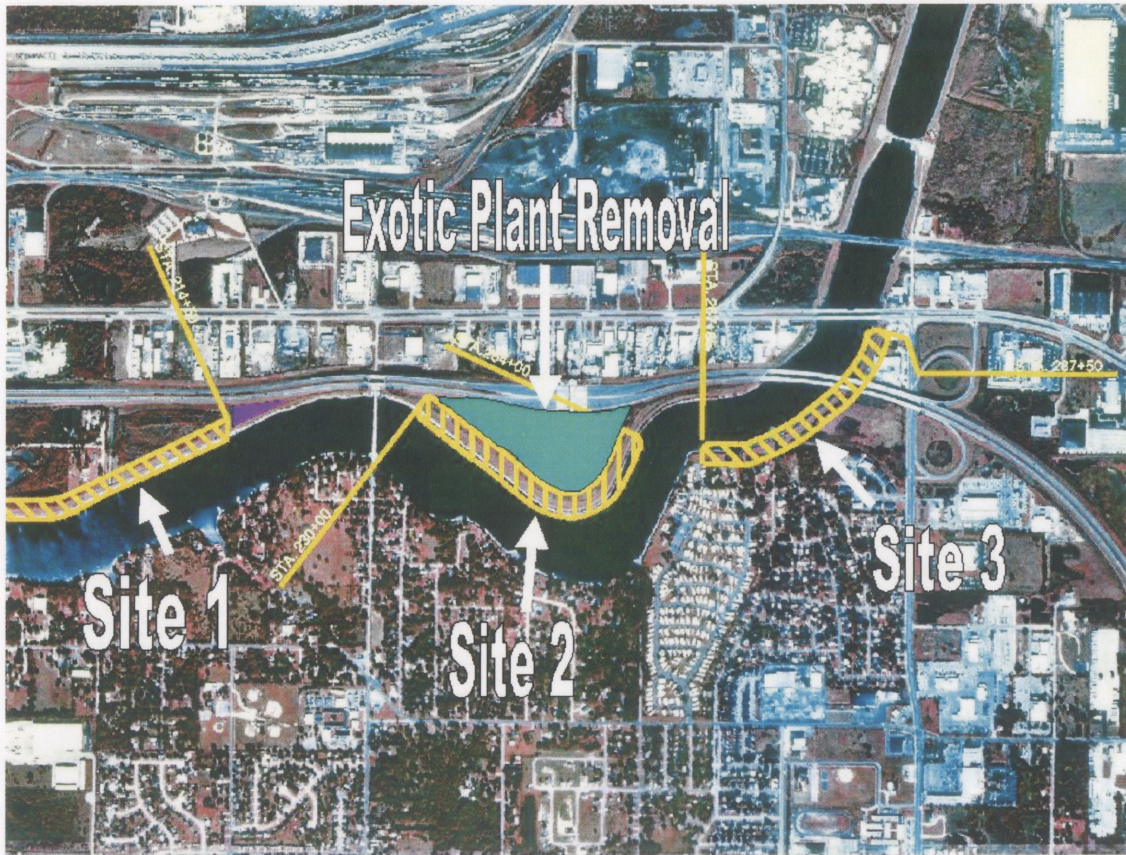


Figure 4, Wetland Restoration Sites

2.4.4 Underwater Berm Removal and Habitat Creation at Site 1 and 2.

The berm beneath the U.S. Highway 41 bridge spans the length and width of the bridge. The elevation of the top of berm is approximately -5 feet NGVD. Removal will include the width of the berm, approximately 100 feet, covering approximately 400 feet or two-thirds of the bridge's length. It will be removed down to -20 feet NGVD with the bridge piers being stabilized with riprap if required. The potential restoration sites are shown in Figure 4. An area encompassing approximately 6 acres at two upstream sites, 1 and 2 are proposed for restoration to saltmarsh wetland areas. The existing berms will be degraded and form a slope from elevation 0.0 to +2.0. This area will be planted with *Spartina alterniflora* and *Juncus roemerianus* to create the saltmarsh. The excess material will be placed in the channel on a 1 to 4 slope to create a littoral shelf. At site 2, the upland will

also be cleared of exotic vegetation and planted with red cedar and sand pine to enhance the existing vegetation. The dredged material from underneath Highway 41 Bridge would be placed in the upland Dredged Material Management Area located near the mouth of the Palm River as it enters McKay Bay. If the placement of dredge material occurs during 1 April through 31 August a Migratory Bird Protection Plan would be implemented. Impacts on manatees would be mitigated by implementing a manatee protection plan which involves monitoring and avoidance.

2.4.5 Underwater Berm Removal and Habitat Creation at Sites 1, 2, and 3.

The berm beneath the U.S. Highway 41 bridge spans the length and width of the bridge. The elevation of the top of berm is approximately -5 feet NGVD. Removal will include the width of the berm, approximately 100 feet, covering approximately 400 feet or two-thirds of the bridge's length. It will be removed down to -20 feet NGVD with the bridge piers being stabilized with riprap if required. The potential restoration sites are shown in Figure 4. An area encompassing approximately 8 acres at three upstream sites, 1, 2, and 3 are proposed for restoration to saltmarsh wetland areas. The existing berms will be degraded and form a slope from elevation 0.0 to +2.0. This area will be planted with *Spartina alterniflora* and *Juncus roemerianus* to create the saltmarsh. The excess material will be placed in the channel on a 1 to 4 slope to create a littoral shelf. At site 2, the upland will also be cleared of exotic vegetation and planted with red cedar and sand pine to enhance the existing vegetation. The dredged material from underneath Highway 41 Bridge would be placed in the upland Dredged Material Management Area located near the mouth of the Palm River as it enters McKay Bay. If the placement of dredge material occurs during 1 April through 31 August a Migratory Bird Protection Plan would be implemented. Impacts on manatees would be mitigated by implementing a manatee protection plan which involves monitoring and avoidance.

2.5. ALTERNATIVE ANALYSIS.

The positive and/or adverse effects upon the important resources for the alternatives have been reviewed and compared in Table 1, Alternative Comparison Chart. This comparison was utilized in the decision-making process.

2.6. PREFERRED ALTERNATIVE.

The remaining alternatives were compared and evaluated environmentally and economically and it was determined that the **Underwater Berm Removal and Habitat Creation at Sites 1, 2, and 3** was considered the preferred alternative.

Figure 1, Alternative Comparison Chart

Resources	No-Action Alternative	Underwater Berm Removal	Underwater Berm Removal and Habitat Creation at Site 1	Underwater Berm Removal and Habitat Creation at Sites 1 and 2	Underwater Berm Removal and Habitat Creation at Sites 1, 2 and 3.
Water Quality	Water quality will continue to deteriorate due to a lack of flushing caused by the submerged berm and the accumulation of silt, organic material and contaminants behind the berm and in the deeper areas of the river.	The project will cause temporary increases in turbidity where dredging is taking place and at the disposal site. The Florida water quality regulations require that water quality standards not be violated during dredging operations. The standards state that turbidity outside the designated mixing zone shall not exceed 29 NTU's above background. Various protective measures and monitoring programs will be conducted during construction to ensure compliance with State water quality standards.	The project will cause temporary increases in turbidity where dredging is taking place and at the disposal site. The Florida water quality regulations require that water quality standards not be violated during dredging operations. The standards state that turbidity outside the designated mixing zone shall not exceed 29 NTU's above background. Various protective measures and monitoring programs will be conducted during construction to ensure compliance with State water quality standards.	The project will cause temporary increases in turbidity where dredging is taking place and at the disposal site. The Florida water quality regulations require that water quality standards not be violated during dredging operations. The standards state that turbidity outside the designated mixing zone shall not exceed 29 NTU's above background. Various protective measures and monitoring programs will be conducted during construction to ensure compliance with State water quality standards.	The project will cause temporary increases in turbidity where dredging is taking place and at the disposal site. The Florida water quality regulations require that water quality standards not be violated during dredging operations. The standards state that turbidity outside the designated mixing zone shall not exceed 29 NTU's above background. Various protective measures and monitoring programs will be conducted during construction to ensure compliance with State water quality standards.
Water Circulation	Continued lack of flushing due to the submerged berm.	Significantly improved circulation for 160 acres in the Palm River.	Significantly improved circulation for 160 acres in the Palm River.	Significantly improved circulation for 160 acres in the Palm River..	Significantly improved circulation for 160 acres in the Palm River..

Resources	No-Action Alternative	Underwater Berm Removal	Underwater Berm Removal and Habitat Creation at Site 1	Underwater Berm Removal and Habitat Creation at Sites 1 and 2	Underwater Berm Removal and Habitat Creation at Sites 1, 2 and 3.
HTRW	No impact.	No impact.	No impact.	No impact.	No impact.
Birds	No Impact	Impact migratory bird nesting if dredge placement occurs 1 April thru 31 August. Impacts mitigated by implementing migratory bird protection plan.	Increase of 7.8 acres wading bird habitat Impact migratory bird nesting if dredge placement occurs 1 April thru 31 August. Impacts mitigated by implementing migratory bird protection plan.	Increase of 15 acres wading bird habitat Impact migratory bird nesting if dredge placement occurs 1 April thru 31 August. Impacts mitigated by implementing migratory bird protection plan.	Increase of 20.3 acres wading bird habitat Impact migratory bird nesting if dredge placement occurs 1 April thru 31 August. Impacts mitigated by implementing migratory bird protection plan.
Fisheries	No Impact	Minor short-term impact on fish from construction activities.	Minor short-term impact on fish from construction activities. Long-term creation of 7.8 acres of nearshore and emergent wetland habitat for juvenile fish	Minor short-term impact on fish from construction activities. Long-term creation of 15 acres of nearshore and emergent wetland habitat for juvenile fish	Minor short-term impact on fish from construction activities. Long-term creation of 20.3 acres of nearshore and emergent wetland habitat for juvenile fish

Resources	No-Action Alternative	Underwater Berm Removal	Underwater Berm Removal and Habitat Creation at Site 1	Underwater Berm Removal and Habitat Creation at Sites 1 and 2	Underwater Berm Removal and Habitat Creation at Sites 1, 2 and 3.
Manatees	No Impact	Increased estuarine habitat Minor impact from dredging. Impacts mitigated by implementing protection plan.	Increased estuarine habitat Minor impact from dredging and fill placement. Impacts mitigated by implementing protection plan.	Increased estuarine habitat Minor impact from dredging and fill placement. Impacts mitigated by implementing protection plan.	Increased estuarine habitat Minor impact from dredging and fill placement. Impacts mitigated by implementing protection plan.
Seagrass Beds	No impact.	No impact.	No impact.	No impact.	No impact.
Wetlands	No impact	No Impact.	Increase of 1 acre of saltmarsh	Increase of 6 acres of saltmarsh	Increase of 8 acres of saltmarsh
Benthic Habitat	No Impact	Minor impact on benthic habitat under Highway 41 bridge during construction	Minor impact on benthic habitat under Highway 41 bridge during construction. Loss of 4 acres of deep-water habitat, replaced by 4 acres shallow-water habitat	Minor impact on benthic habitat under Highway 41 bridge during construction. Loss of 24 acres of deep-water habitat, replaced by 24 acres shallow-water habitat	Minor impact on benthic habitat under Highway 41 bridge during construction. Loss of 32 acres of deep-water habitat, replaced by 32 acres shallow-water habitat

Resources	No-Action Alternative	Underwater Berm Removal	Underwater Berm Removal and Habitat Creation at Site 1	Underwater Berm Removal and Habitat Creation at Sites 1 and 2	Underwater Berm Removal and Habitat Creation at Sites 1, 2 and 3.
Cultural Resources	No effect.	No adverse effects expected.	No adverse effects expected.	No adverse effects expected.	No adverse effects expected.
Recreation	No impacts	Minor short-term adverse impact on recreational fishing around the Highway 41 bridge during construction.	Minor short-term adverse impact on recreational fishing around the Highway 41 bridge during construction. Long-term increase in fish rearing habitat from construction of nearshore and wetland habitat	Minor short-term adverse impact on recreational fishing around the Highway 41 bridge during construction. Long-term increase in fish rearing habitat from construction of nearshore and wetland habitat	Minor short-term adverse impact on recreational fishing around the Highway 41 bridge and along the shoreline during construction. Long-term increase in fish rearing habitat from construction of nearshore and wetland habitat
Aesthetics	No Impact	Minor short-term adverse noise and visual impacts during construction from presence and operation of heavy equipment	Minor short-term adverse noise and visual impacts during construction from presence and operation of heavy equipment	Minor short-term adverse noise and visual impacts during construction from presence and operation of heavy equipment	Minor short-term adverse noise and visual impacts during construction from presence and operation of heavy equipment

Resources	No-Action Alternative	Underwater Berm Removal	Underwater Berm Removal and Habitat Creation at Site 1	Underwater Berm Removal and Habitat Creation at Sites 1 and 2	Underwater Berm Removal and Habitat Creation at Sites 1, 2 and 3.
Navigation	No Change in Impacts	Minor adverse impact on navigation during construction Improved navigability under the bridge.	Minor adverse impact on navigation during construction Improved navigability under the bridge.	Minor adverse impact on navigation during construction Improved navigability under the bridge.	Minor adverse impact on navigation during construction Improved navigability under the bridge.
Economics	No Impact.	Minor Short-term stimulus to the local economy from the sale of goods and services in support of the construction.	Minor Short-term stimulus to the local economy from the sale of goods and services in support of the construction.	Minor Short-term stimulus to the local economy from the sale of goods and services in support of the construction.	Minor Short-term stimulus to the local economy from the sale of goods and services in support of the construction.

3 AFFECTED ENVIRONMENT

3.1. Introduction.

The Affected Environment section briefly describes the environmental resources, relevant issues, and their location on or in relation to the site. The environmental issues that are relevant to the decision to be made are:

- a) **Water Quality**
- b) **Water Circulation**
- c) **Hazardous Toxic and Radioactive Waste (HTRW)**
- d) **Sea Grass Beds**
- e) **Manatees**
- f) **Birds**
- g) **Fisheries**
- h) **Benthic Habitat**
- i) **Wetlands**
- j) **Navigation**
- k) **Cultural Resources**
- l) **Aesthetics**
- m) **Recreation**
- n) **Economics**

3.2. GENERAL DESCRIPTION.

Tampa Bay is Florida's largest open-water estuary, spanning almost 400-square miles, and receives drainage from a 2200-square-mile watershed. A rich, mosaic of habitats exist, and are highly productive in terms of wildlife resources. It has been a designated National Estuary Program site since 1990. Historically, Tampa Bay has suffered significant tidal and freshwater wetland losses due to uncontrolled dredge and fill activities associated with a burgeoning population. This, in addition to nutrient loading from various point and non-point sources, over-fishing, and irresponsible boating practices, has reduced the overall quality and quantity of water resources and wildlife habitat (TNEP 1996). Hillsborough County is located in west central Florida and plays an integral part in the economy of the Tampa Bay region. Hillsborough Bay provides access and berthing facilities for international and national shipping firms that serve the phosphate, coal, and petrochemical industries. It is bounded on the east by Polk County, Tampa Bay on the south and southeast, Pinellas County to the west, and Pasco County to the north. Historically, the bay has been plagued by contaminants. Urbanization and fertilizer runoff from berthing areas caused water quality degradation. The geographical confines of the bay also contribute to the problem by restricting tidal flushing, hence the cleansing action of the bay. Water quality in the bay has improved significantly in recent years, as improvements in municipal waste water facilities, stormwater treatment, and industrial discharge are implemented (TNEP 1993).

3.3. Relevant Factors of the Environment that would be Affected

3.3.1 Physical

- a. **Water Quality.** Since the creation of the Tampa Bypass canal by the Army Corps local groups have complained that increasing erosion, increased canal depths to 20 foot, and additional flow induced to Tampa Bay have been exacerbating existing conditions and causing water quality problems in the bay and Palm River. Palm River was originally a shallow coastal stream of between five and six feet deep with anecdotally clear water quality. In the 1950's, however, State of Florida Researchers found that Palm River was experiencing bacterial, biochemical, chemical and physical pollution. Industrial plants, meatpacking houses, rendering plants, and domestic wastewater plants and failed septic systems were dumping an estimated four tons of pollutants into the bay per day. Later, in the 60's, a chemical plant's and fertilizer plants were added to the mix and degradation of the river. In the 70's, the Hillsborough County Environmental Protection Commission (HCEPC) began an enforcement and elimination of point source campaign that resulted in the elimination of many sources, and water quality "Vastly improved". In the early 1980s water quality studies determined that low DO concentrations were now the principle water quality problem and that storm water and runoff non point source were now the important contributors to poor water quality. In the mid 1980s studies showed that anoxic or nearly anoxic bottom water was present in the canal in virtually all months save January February and March. In the late 80's, HCEPC, largely through its effort to eliminate point source discharges, was able to report that the Palm rivers water quality was improving. Notable exceptions were when domestic wastewater plants (since eliminated) were overloaded, groundwater from old landfills, and a persistent PCB problem in the sediments after the USGS began testing it in the mid 70's. Water quality is described for the Palm River system now as exhibiting the following problems: 1. The altered bathymetry of the Palm River adversely affects the dissolved oxygen characteristics of the river. Specifically shoals accreting after the Tampa Bypass canal was finished. 2. Untreated storm water adversely affects the water quality of the palm river. 3. The surficial sediments of the Palm River appear to be a source of Sediment Chemical Oxygen demand and may be highly contaminated with toxic material, 4. The abandoned landfill on the rivers north bank below Maydell Drive adversely affects habitat and aesthetic values and possibly water quality. Contractors working for the Palm River Management Committee, the City of Tampa and the West Coast Regional Water Supply Authority, summarized water quality data for this project in the mid 1990's in order to determine what the extent and source of the problems were. Eight water quality

parameters were selected for the comparison, salinity, dissolved oxygen (DO), pH, total Kjeldahl nitrogen, water clarity, chlorophyll a, color, and total phosphorus. Samples were taken in the water column at surface, mid-depth, and bottom.

- i. Salinity. Palm River is subject to the tidal influence of Mc Kay Bay and water having the salinity characteristics of bay water occurs at the bottom of the river at S-160. There is a distinctive salt-water wedge that occurs when freshwater flows are increased but there is no point in the river below S-160 that does not exhibit salt or brackish water conditions. This is not thought to affect water quality.
- ii. Dissolved Oxygen. Surface stations show concentrations of DO in the range of normal for the State of Florida and generally meeting Class III water quality standards (5mg/l). Bottom DO concentrations for the US 41 and McKay Bay stations are very similar ranging around 3.6 and 3.5 respectively. While these values for average DO are low in terms of Class III water quality standards the average bottom reading for the station closest to S-160 was 0.9mg/l, or almost anoxic. Extremely poor for maintaining a well-balanced population of fish and wildlife. The DO depletion which occurs in the water column has been documented within numerous studies throughout the late 80s and early 90's which show DO concentrations at the bottom (near SR 60) of lows near 0.1mg/l and concentrations measured at the top at up to 9.5mg/l. A comparison of late 80's data with early 90's data on DO showed a trend towards slight improvement in the average DO concentrations however they were deemed small and not statistically significant.
- iii. PH. The average pH of the Palm River immediately downstream of S-160 was not found to be statistically different from the pH of waters upstream of the dam. The values reported ranged from 7.3 to 7.7 with less than a 0.3pH difference from top to bottom.
- iv. Total Kjeldahl nitrogen. Average concentrations of Kjeldahl nitrogen have declined in recent years. Nitrogen has always been considered in Tampa Bay to be the limiting nutrient in algal blooms. A comparison of data from the late 80's to the early 90's show that average concentrations dropped from 32% to 50%. Because the highest concentrations were observed upstream in Palm River rather than towards McKay Bay it can be concluded that the major source of nitrogen in the river originates in the watershed of the Palm River and not the bay. Any solution that

would continue to attenuate nitrogen load to the river would assist in McKay Bay.

- v. Water clarity. Water clarity was measured by a secchi disk. Clarity increases almost linearly in the Palm River as you approach McKay Bay with an overall apparent trend of also increasing over time from the late 1980s through the 1992 timeframe. Clarity ranged from 37 inches at the SR 60 site to 50 inches at Mc Cay Bay. This does not relate directly to state water quality standards that are usually measured in Nephelometric turbidity units. Turbidity for the three stations was not significantly different over the 1990-1992-time period and ranged from 7 to 12 NTUs. Data however indicates that Secchi disc readings upstream of the dam were similar or lower at all times than the stations in the lower reaches below S-160.
- vi. Chlorophyll-a. "In general the data for all three stations suggests a downward trend in chlorophyll-a concentrations and additional data in the future may show that the bay is closer to meeting the Agency on Bay managements target concentrations of 15u/l" (Water and Air Research, 1995). The study however further states, "Since 1987 32 algal blooms have been reported in the Palm River."
- vii. Color. The color of the water in the Palm River and McKay Bay has lessened over the 1986-1992 time frame. All three stations show reductions varying from 20% to 30% in average color units from what was originally taken. The reductions in average color are not statistically significant however and they may be in response to less surface water flow near the river and the bay as a result of low rainfall in the early 90s. Color in water principally results from degradation processes in the natural environment. Although colloidal forms of iron and manganese occasionally are the cause of color in water, the most common causes are complex organic compounds originating from the decomposition of naturally occurring organic matter. Sources of organic material include humic materials from soils such as tannins, humic acid and humates; decaying plankton; and other decaying aquatic plants. Industrial discharges may contribute similar compounds. Potential sources of color from industrial discharges would include effluent from paper mills, tanneries, textile and chemical plants. Color is reported in "color units" which generally are determined by use of the platinum-cobalt method.
- viii. Total phosphorus; With respect to phosphorus the Palm River downstream of S-160 generally had higher concentrations of total

phosphorus and ammonia nitrogen than upstream of S-160. This is true for data reported in the 1985 Knutilla and Corral report and for 1990-1992 studies by HCEPC and USGS. Some of the stations in the study found some small, not statistically significant, decreases in phosphorus over the years. The US 41 station however exhibits the highest, and most stable average concentration over the years ranging about 0.55mg/l.

- ix. **Other Constituents.** Information on a number of metals was available but limited. The literature indicates that metal contamination in the water column is not a problem but metals might possibly be entrained in the bottom sediments and available should they be stirred (including storm events). For pesticides and organic contaminants where data was available extremely low values were recorded leading to the conclusion the pesticides and organic contaminants would not be a problem.

- b. **Benthic Habitat.** Aquatic resources in the Palm River are limited by a lack of habitat complexity and by sub-optimal water quality. The river channel is deeply incised with a very narrow (1-2 feet wide) littoral shelf in the areas where a shelf exists. By and large the river's side slopes are steep, descending from the elevated berm to the bottom with no slope change, giving the river a manicured appearance. Shoreline vegetation is sparse and is present above the high water line, offering minimal cover. The river's bottom has a slowly undulating depth of 17 to 20 feet from structure S-160 to its mouth, with prominent ridges beneath bridge crossings (HDR Engineering 1994). At stations located near the river's mouth and at the Highway 41 bridge, 97% of the sediments collected were mud and silt and it is likely that the river's substrate is predominantly very-fine grained. These physical attributes, taken in their combination, describe a channel that provides limited aquatic habitat.



Figure 5, Shoreline Vegetation

- c. **Water Circulation.** There is degraded water quality due to the lack of flushing caused by the underwater berm, reduced freshwater flows over S-160 and a discharge of contaminants into the waterway. Efforts to reduce discharges have reduced water quality impacts but the poor flushing of the waterway has resulted in accumulations of silt and organic materials that contribute to turbidity and reduced dissolved oxygen in the water column.
- d. **HTRW.** A field investigation and database screening of the proposed work was conducted and no HTRW sites were encountered in the project area. It should be noted that a closed landfill is located adjacent to Site 1.

3.3.2 Biological

- a. **Threatened and Endangered Species.** The endangered Florida manatee (*Trichechus manatus latirostis*) is found within Hillsborough Bay. The Florida manatee is a native marine mammal restricted to the coastal waters of Florida and Georgia. Manatees are commonly found in bays, inlets, and rivers

occurring in fresh, brackish, and salt water environments. They are herbivorous, and prefer to feed on submerged aquatic vegetation. Aerial survey counts in Tampa Bay have increased steadily since 1984, due to better visibility from improved equipment, refined methodology, immigration from Crystal River, and a marginal population increase. Surveys from 1987-1994 indicate a total of 5358 sightings in Tampa Bay. A record high of 190 animals was observed at one time (1994). From 1987 through 1994, 1,539 and 229 were documented in Hillsborough Bay and the Big Bend areas respectively. Manatees are present in Tampa and Hillsborough Bay to forage, frequent freshwater drinking sites, and to seek refuge in warm water outfall areas during the winter months. Manatees are also known to travel the Palm River. The immediate action area receives year round use, with residents reporting that manatees are seen in the river on a regular basis (Southwest Florida Water Management District 1990). Thirty-two manatee mortalities are documented for Hillsborough Bay over a 18-year period (1977-1995). Many factors are attributed including watercraft, natural, perinatal, and undetermined. In that time, there were eight manatee mortalities in the action area. Two were determined as natural, four were undetermined, one was caused by watercraft, and one was perinatal. Manatee speed zone signs are placed in the Palm River. The Palm River has no seagrass, but does harbor manatees and there is one recorded mortality in the Palm River (perinatal death) (HDR Engineering 1994). To adequately protect the manatees, the standard manatee construction conditions be made a condition of any work contract or Corps proposal for dredge and fill operations.

- b. Wetlands.** From its mouth at McKay Bay to the Highway 41 bridge both shorelines are at natural elevations and shoreline vegetation is dominated by mangroves (*Avicennia germinans* and *Rhizophora mangle*). To the south is 160 acres of land owned by the Southwest Florida Water Management District on which three spoil disposal sites are located. The infrequently used disposal sites cover 85 acres. Their interiors contain large areas of shallow water and mud flats where the plant community composition is determined by flooding that occurs during rainy periods and by periodic dredged material disposal. Coastal hammock covers most of the remaining 75 acres, with a fringe of mangroves along the river and mosquito ditches dredged into the property. Cabbage palm (*Sabal palmetto*), live oak (*Quercus virginiana*) and American elm (*Ulmus americana*) are the dominant native vegetation in the hammocks, with Brazilian pepper (*Schinus terebinthifolius*) and woman's tongue tree (*Albizia lebbek*) common exotic species. To the north is 70 acres of fish and wildlife habitat; about 30 acres of intertidal habitat and 40 acres of coastal hammock. The intertidal habitats are dominated by mangroves with black needlerush (*Juncus roemerianus*) marsh and saltern habitat also present. Cabbage palm and live oak are the common coastal hammock species.



Figure 6, Cabbage Palm Hammocks.

- c. **Seagrass.** Seagrass beds are important as they offer habitat to several fish species (red drum, spotted sea trout, spot, silver perch, sheepshead, and snook), invertebrates, algae, bottlenose dolphin, and the manatee. Historically, Tampa Bay has lost much of its seagrass as a result of dredge and fill activities, and degraded water quality associated with urbanization and industry discharge. Since 1950, losses equal approximately 15 thousand acres. A recent increase has been documented, and is attributed to improved bay water quality (TNEP 1996). Seagrass beds do not exist in the immediate project area.
- d. **Birds.** Shorebird habitat is limited along the Palm River since the shallow waters are minimal. There are few spots for rookeries and nesting since most of the shoreline along the north bank is kept cleared. Residential development along the south bank also limits bird nesting. Water fowl and shore birds inhabit the upland disposal areas designated for the Tampa By-pass Canal. Located at the mouth of the Palm River along the south bank and along the McKay Bay Estuary.
- e. **Fisheries.** No fisheries data are available from the Palm River. The limited habitat availability and stressful dissolved oxygen concentrations indicate

littoral species that can use small shoreline habitats may be present, that highly mobile open water species may be present, and that demersal species tolerant of low dissolved oxygen concentrations may be present. Table 1 lists sixteen species of importance to Gulf of Mexico fisheries that were collected from McKay Bay. A subset of that group may be present in the Palm River, including striped mullet, spot, Gulf killifish, longnose killifish, rainwater killifish, sailfin molly, bay anchovy, snook, tidewater silverside, and mojarra, as well as hardhead catfish (*Arius felis*) and Gulf menhaden (*Brevoortia patronus*) (personal observation).

Common Name	Scientific Name
tarpon	<i>Megalops atlanticus</i>
bay anchovy	<i>Anchoa mitchilli</i>
Gulf toadfish	<i>Opsanus beta</i>
Gulf killifish	<i>Fundulus grandis</i>
longnose killifish	<i>Fundulus similis</i>
rainwater killifish	<i>Lucania parva</i>
sailfin molly	<i>Poecilia latipinna</i>
tidewater silverside	<i>Menidia peninsulae</i>
common snook	<i>Centropomus undecimalis</i>
mojarra	Gerreidae
sheepshead	<i>Archosargus probatocephalus</i>
spotted seatrout	<i>Cynoscion nebulosus</i>
spot	<i>Leiostomus xanthurus</i>
red drum	<i>Sciaenops ocellatus</i>
silver mullet	<i>Mugil curema</i>
striped mullet	<i>Mugil cephalus</i>

Table 1. Fish of importance to Gulf of Mexico fisheries collected from McKay Bay (Sykes and Finucane 1966 as reported in HDR Engineering 1994)

3.3.3 Social

- a. **Cultural Resources.** There are four known archeological sites located in the general vicinity of the project area. Only one of these sites, 8HI76, is within the boundaries of the project area. It is located just west of the Highway 41 bridge. New South Associates conducted a cultural resources survey of the Palm River Restoration study area in February and March of 2002. Site 8HI76 was revisited and no evidence of the site was found. The area has been heavily developed and erosion has most likely destroyed the remainder of the site. The three berm areas were surveyed by surface collections and shovel testing at 30 meter intervals.

As a result of the intensive archeological survey of the Highway 41 bridge site and the 5,876 linear feet of riverfront shoreline around the berm areas, no new sites were identified.

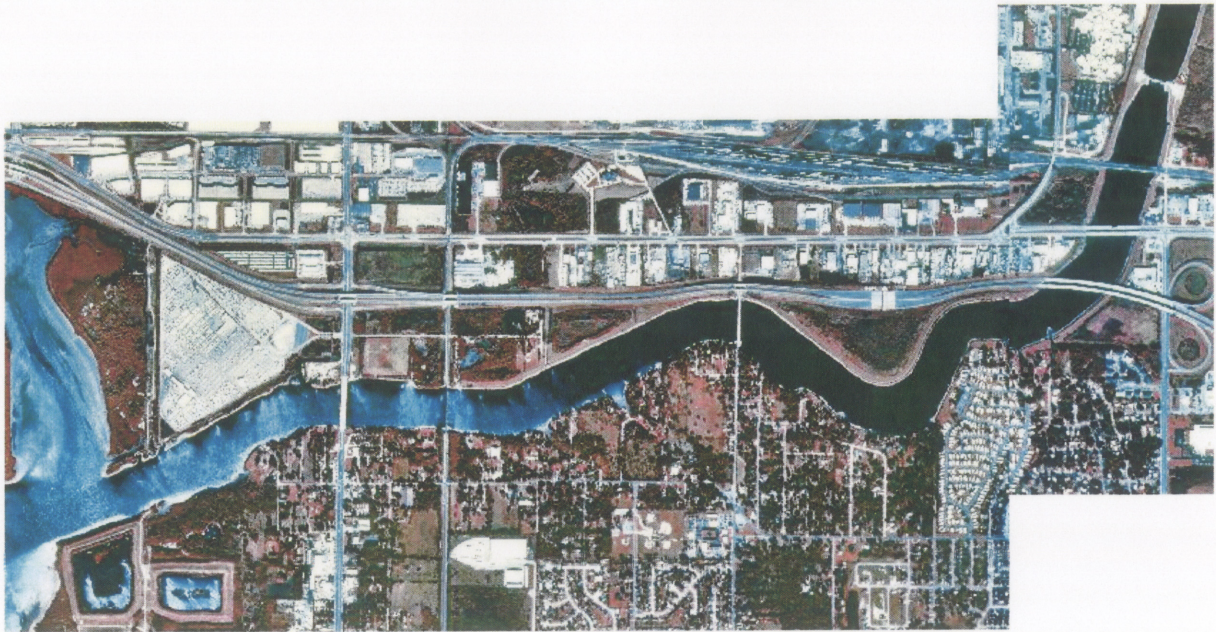


Figure 7, Area Aerial Photograph

- b. Aesthetics.** The existing setting of the Palm River at this location is a mixture of residential, industrial and undeveloped lands. Commercial property exists on the north bank near the mouth, while the south bank is the site of several upland disposal areas. The Dredged Material Management Area is used by waterfowl, as the dredged material placement within these bermed areas is infrequent. The property along both banks is relatively undeveloped. The south bank contains many properties having boat docks. A densely populated area near the upper end of the project is composed of mobile homes. The undeveloped areas along the banks were used for dredged material placement. One of the sites along the north bank is a former landfill. The north bank of the canal has a berm running adjacent to the bank.



Figure 8, North Bank Berm

- c. Recreation.** Most of the recreation in the area is fishing either from the bank or by boat. Some areas are used for bird watching.

3.3.4 Economics

- a. Economics.** There is no commercial use of the waterway. The only economic benefits provided by the Palm River are from flood damage reduction associated with the Four Rivers basin Flood Control Project.
- b. Navigation.** The Palm River provides recreational boat access to Tampa Bay.

4 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION.

This section describes the probable consequences of implementing each alternative upon selected environmental resources. These resources are directly linked to the relevant issues listed in Section 1.4 that have served to fine-tune the environmental analysis. The following narrative includes predicted changes to the existing environment including both direct and indirect effects, irreversible and irretrievable commitment of resources, unavoidable effects, and cumulative impacts.

4.1.1 Cumulative Impacts.

Cumulative impact is “the impact upon the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions ...” (40 CFR §1508.7).

4.1.2 Irreversible and Irretrievable Commitment of Resources

- a. **Irreversible.** An irreversible commitment of resources is one in which the ability to utilize a resource is lost forever (e.g., the mining of a mineral resource).
- b. **Irretrievable.** An irretrievable commitment of resources is one in which the ability to utilize a resource in its present state or configuration is lost for a period of time (e.g., restricting the flow of a river with a dam).

4.2 NO-ACTION ALTERNATIVE

4.2.1 Physical

- a. **Surface Water Quality.** Without the project it is anticipated that conditions of low dissolved oxygen and uninterrupted flow of nutrients into Tampa Bay would continue. While data shows that there may be no statistically significant trends for the better or worse in the system it is safe to say that documented poor water quality conditions exist in the river now. Sediment accretion and sediment biochemical oxygen demand would continue to affect the river immediately downstream of S-160.
- b. **Benthic Habitat.** There would be no change in benthic organisms.
- c. **Water Circulation.** There would be poor water circulation in the canal.
- d. **HTRW.** There are no adverse effects from HTRW sources.

4.2.2 Biological

- a. **Manatees.** There would be no adverse impacts on manatees from the No Action alternative.
- b. **Birds.** There would be no impacts on migratory birds.
- c. **Fisheries.** There would be no improved fishery habitat from this alternative.
- d. **Seagrass Beds.** There would be no impacts on seagrasses.
- e. **Wetlands.** There would be no impact on wetlands.

4.2.3 Social

- a. Cultural Resources.** There would be no effect on cultural resources from the No-Action Alternative.
- b. Aesthetics.** There would be no impacts on aesthetics.
- c. Recreation.** Recreational activities would be maintained at the existing level.

4.2.4 Economics

- a. Economics.** There would be no economic impact from the No Action Alternative.
- b. Navigation.** Recreational navigation would be maintained at existing levels.

4.2.5 Cumulative Impacts.

The only cumulative impact would be associated with the degraded water quality. If this trend is continued with other freshwater inputs into Tampa Bay there could be a cumulative adverse effect on the water quality of Tampa Bay.

4.2.6 Unavoidable Effects.

No unavoidable effects resulting from the No-Action Alternative were identified.

4.2.7 Irreversible and Irretrievable Commitments of Resources.

There would be no utilization of resources should this alternative be implemented. Therefore, there is no irreversible or irretrievable commitment of resources.

4.2.8 Relationship of Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity.

There would be no short-term uses so; therefore there would be no change in productivity.

4.3. BERM REMOVAL.

4.3.1 Physical

- a. Surface Water Quality.** There would be improved water quality as a result of increased flushing of the river. Increase flushing will prevent accumulation of silt and organic material. Reduced accumulation of these materials will eliminate at least some of the factors contributing to the poor water quality in the river.

- b. **Benthic Habitat.** There would be no impact on shallow-water benthic habitat. The area where the underwater berm would be removed would be re-colonized by species more suited for deeper water.
- c. **Water Circulation.** There would be improved water quality as a result of improved water circulation for 160 acres in the Palm River.
- d. **HTRW.** There would be no adverse effects from HTRW sources.

4.3.2 Biological

- a. **Manatees.** There would be a short-term adverse impact on manatees during construction dredging and auxiliary boat traffic. This impact would be mitigated by the implementation of the standard State and Federal Manatee Protection Conditions (Appendix I). Part of this plan is the monitoring for the presence of manatees by all workers and cessation of work should manatees enter the construction zone. Resuming work would only occur should the manatees reach the safe zone. If a clamshell is used, a special manatee observer would be used to document impacts with video equipment.
- b. **Birds.** There would be no adverse impacts on birds in the construction area. Waterfowl and migratory birds could be affected in the rarely used dredged material management area located near the mouth of the Palm River. Impacts to these birds would be mitigated by implementing the District's Migratory Bird Protection Plan which involves monitoring bird activities during the period 1 April through 31 August. If nesting activity is found, a protective zone will be established which would prevent construction from occurring until birds are hatched and fledged.
- c. **Fisheries.** There would be an increase in habitat from exposing the pilings under the bridge.
- d. **Seagrass Beds.** There would be no impact on seagrasses from this alternative.
- e. **Wetlands.** There would no impact from this alternative.

4.3.3 Social

- a. **Cultural Resources.** There would be no impacts to historic properties in the removal of the berm. Past dredging activities would have removed any historic properties from the channel.

- b. **Aesthetics.** There would be a minor adverse impact on aesthetics from the presence and operation of dredging equipment since the work would be located adjacent to a public highway and across from a residential area.
- c. **Recreation.** There would be a minor impact on recreational fishing during the dredging, and recreational boat traffic in the area.

4.3.4 Economics

- a. **Economics.** There would be a short-term stimulus to the local economy during construction from the sale of goods and services in support of the work.
- b. **Navigation.** There would be a short-term adverse impact on vessels using the channel during the construction period. There would be increased safety for vessels from eliminating the berm under the bridge.

4.3.5 Cumulative Impacts.

There would be no cumulative impacts associated with this alternative.

4.3.6 Unavoidable Effects.

The only unavoidable impact of the dredging would be the turbidity generated during dredging.

4.3.7 Irreversible and Irretrievable Commitment of Resources

The only loss of resources that cannot be retrieved is the fuel consumption used in the construction effort. The bottom sediments are relocated to other sites and could be retrieved and placed back into the channel.

4.3.8 Relationship of Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity.

The relative productivity of this area from the channel construction would not change.

4.4. BERM REMOVAL AND HABITAT CREATION AT SITE 1

4.4.1 Physical

- a. **Surface Water Quality.** Improved water quality as a result of increased flushing of the river. Increase flushing will prevent accumulation of silt and organic material. Reduced accumulation of these materials will eliminate at least some of the factors contributing to the poor water quality in the river.

- b. **Benthic Habitat.** The canal is relatively deep and doesn't contain much in the way of benthic organisms. By degrading the berm at Site 1 and creating a littoral shelf, there would be an increase of approximately 4 acres of productive benthic habitat.
- c. **Water Circulation.** There would be no adverse impact on circulation from this alternative. Berm removal would result in increase circulation and improved flushing of the waterway for 160 acres in the Palm River.
- d. **HTRW.** There would be no adverse effects from HTRW sources.

4.4.2 Biological

- a. **Manatees.** There would be a short-term adverse impact on manatees during construction of the new facilities and maintenance. This impact would be mitigated by the implementation of the standard State and Federal Manatee Protection Conditions. Part of this plan is the monitoring for the presence of manatees by all workers and cessation of work should manatees enter the construction zone. Resuming work would only occur should the manatees reach the safe zone. If a clamshell is used, a special manatee observer would be used to document impacts with video equipment.
- b. **Birds.** There would be no adverse impacts on birds in the construction area. Waterfowl and migratory birds could be affected in the rarely used dredged material management area located near the mouth of the Palm River. Impacts to these birds would be mitigated by implementing the District's Migratory Bird Protection Plan which involves monitoring bird activities during the period 1 April through 31 August. If nesting activity is found, a protective zone will be established which would prevent construction from occurring until birds are hatched and fledged.
- c. **Fisheries.** There would be an increase in habitat from exposing the pilings under the bridge. There would be an increase of 7.8 acres habitat for juvenile fish from the creation of wetlands. Larger fish species would congregate along the edge to prey on smaller fish as well as macroinvertebrates living in the wetlands.
- d. **Seagrass Beds.** There would be no impact on seagrasses.
- e. **Wetlands.** There would be an increase of approximately 7.8 acres of saltmarsh from the degrading of the berm at Site 1 and planting of *Spartina alterniflora* and *Juncus roemerianus*. There would be a minor impact from the removal of a narrow strip of shoreline mangrove wetlands. Since mangroves are located adjacent to the site it is likely they would revegetate the new area.

4.4.3 Social

- a. **Cultural Resources.** There is a possibility that cultural resources may exist under the terms that could be affected by the restoration project. If cultural resources are located during construction activities, procedures under 36 CFR Part 800.13 will be initiated.
- b. **Aesthetics.** There would be a minor adverse impact on aesthetics from the presence and operation of dredging equipment since the work would be located adjacent to a public highway and across from a residential area.
- c. **Recreation.** There would be a minor impact on recreational fishing, and recreational boat traffic in the area during the dredging and fill placement. There would be a long-term beneficial impact by increasing the amount of bird habitat used for feeding and loafing.

4.4.4 Economics

- a. **Economics.** There would be a short-term stimulus to the local economy during construction from the sale of goods and services in support of the work
- b. **Navigation.** There would be a minor short-term disruption to recreational boat traffic during dredging and fill placement..

4.4.5 Cumulative Impacts.

There would be no cumulative impacts associated with this alternative.

4.4.6 Unavoidable Effects.

The only unavoidable impact of the dredging would be the turbidity generated during dredging.

4.4.7 Irreversible and Irretrievable Commitment of Resources

There would be no irretrievable commitment of resources except for the expenditure of fuel for the transportation to and from the disposal site.

4.4.8 Relationship of Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity.

There would be a short-term effect from the placement of material in the open-water and the associated loss of deep-water habitat. However, in the long-term there would be the creation of 8 acres of saltmarsh habitat, which is considered to be more productive.

4.5. HABITAT CREATION AT SITES 1 AND 2.

4.5.1 Physical

- a. **Surface Water Quality.** Improved water quality as a result of increased flushing of the river. Increase flushing will prevent accumulation of silt and organic material. Reduced accumulation of these materials will eliminate at least some of the factors contributing to the poor water quality in the river.
- b. **Benthic Habitat.** The canal is relatively deep and doesn't contain much in the way of benthic organisms. By degrading the berm at Site 1 and 2, and creating a littoral shelf, there would be an increase of approximately 24 acres of productive benthic habitat.
- c. **Water Circulation.** There would be no adverse impact on circulation from this alternative. Berm removal would result in increase circulation and improved flushing of the waterway.
- d. **HTRW.** There would be no adverse effects from HTRW sources.

4.5.2 Biological

- a. **Manatees.** There would be a short-term adverse impact on manatees during construction of the new facilities and dredged material placement. This impact would be mitigated by the implementation of the standard State and Federal Manatee Protection Conditions. Part of this plan is the monitoring for the presence of manatees by all workers and cessation of work should manatees enter the construction zone. Resuming work would only occur should the manatees reach the safe zone.). If a clamshell is used, a special manatee observer would be used to document impacts with video equipment
- b. **Birds.** There would be no adverse impacts on birds in the construction area. Waterfowl and migratory birds could be affected in the rarely used dredged material management area located near the mouth of the Palm River. Impacts to these birds would be mitigated by implementing the District's Migratory Bird Protection Plan which involves monitoring bird activities during the period 1 April through 31 August. If nesting activity is found, a protective zone will be established which would prevent construction from occurring until birds are hatched and fledged.
- c. **Fisheries.** There would be an increase in habitat from exposing the pilings under the bridge. There would be an increase of 15 acres of habitat for juvenile fish from the creation of wetlands. Larger fish

species would congregate along the edge to prey on smaller fish as well as macroinvertebrates living in the wetlands

- d. **Seagrass Beds.** There would be no impact on seagrass beds.
- e. **Wetlands.** There would be an increase of approximately 15 acres of saltmarsh from the degrading of the berm at Site 1 and 2; and the planting of *Spartina alterniflora* and *Juncus roemerianus*. There would be a minor impact from the removal of a narrow strip of shoreline mangrove wetlands. Since mangroves are located adjacent to the site it is likely they would revegetate the new area.

4.5.3 Social

- a. **Cultural Resources.** There is a possibility that cultural resources may exist under the berms that could be affected by the restoration project. If cultural resources are located during construction activities, procedures under 36 CFR Part 800.13 will be initiated.
- b. **Aesthetics.** There would be a minor adverse impact on aesthetics from the presence and operation of dredging equipment since the work would be located adjacent to a public highway and adjacent residential area.
- c. **Recreation.** There would be a minor impact on recreational fishing during the dredging, and recreational boat traffic in the area of the channel. There would be a minor interruption to fishing and bird watching along this shoreline. There would be a long-term beneficial impact by increasing the amount of bird habitat used for feeding and loafing.

4.5.4 Economics

- a. **Economics.** There would be a short-term stimulus to the local economy during construction from the sale of goods and services in support of the work..
- b. **Navigation.** There would be a minor short-term disruption to recreational boat traffic during dredging and fill placement.

4.5.5 Cumulative Impacts.

There would be a beneficial cumulative impact from the creation of wetlands with Tampa Bay. If this were done with other dredged material from the federal projects a substantial amount of habitat would be created or restored.

4.5.6 Unavoidable Effects.

There would be a loss of open-water habitat and some turbidity generated.

4.5.7 Irreversible and Irretrievable Commitment of Resources.

The only long-term commitment of resources would be the expenditure of fuel to support the work.

4.5.8 Relationship of Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity.

There would be a short-term effect from the placement of material in the open-water and the associated loss of deep-water habitat. However, in the long-term there would be the creation of 6 acres of saltmarsh habitat, which is considered to be more productive.

4.6. BERM REMOVAL AND HABITAT CREATION AT SITES 1, 2 AND 3.

4.6.1 Physical

- a. **Surface Water Quality.** Improved water quality as a result of increased flushing of the river. Increase flushing will prevent accumulation of silt and organic material. Reduced accumulation of these materials will eliminate at least some of the factors contributing to the poor water quality in the river.
- b. **Benthic Habitat.** The canal is relatively deep and doesn't contain much in the way of benthic organisms. By degrading the berm at Sites 1, 2 and 3, and creating a littoral shelf, there would be an increase of approximately 32 acres of productive benthic habitat.
- c. **Water Circulation.** There would be no adverse impact on circulation from this alternative. Berm removal would result in increase circulation and improved flushing of the waterway.
- d. **HTRW.** There would be no adverse effects from HTRW sources.

4.6.2 Biological

- a. **Manatees.** There would be a short-term adverse impact on manatees during construction of the new facilities and dredged material placement. This impact would be mitigated by the implementation of the standard State and Federal Manatee Protection Conditions. Part of this plan is the monitoring for the presence of manatees by all workers and cessation of work should manatees enter the construction zone. Resuming work would only occur should the manatees reach the safe zone). If a clamshell is used, a special manatee observer would be used to document impacts with video equipment.

- b. **Birds.** There would be no adverse impacts on birds in the construction area. Waterfowl and migratory birds could be affected in the rarely used dredged material management area located near the mouth of the Palm River. Impacts to these birds would be mitigated by implementing the District's Migratory Bird Protection Plan which involves monitoring bird activities during the period 1 April through 31 August. If nesting activity is found, a protective zone will be established which would prevent construction from occurring until birds are hatched and fledged.
- c. **Fisheries.** There would be an increase in habitat from exposing the pilings under the bridge. There would be an increase of 20.3 acres of habitat for juvenile fish from the creation of wetlands. Larger fish species would congregate along the edge to prey on smaller fish as well as macroinvertebrates living in the wetlands.
- d. **Seagrass Beds.** There would be no impact on seagrasses.
- e. **Wetlands.** There would be an increase of approximately 20.3 acres of saltmarsh from the degrading of the berm at Sites 1, 2 and 3; and the planting of *Spartina alterniflora* and *Juncus roemerianus*. There would be a minor impact from the removal of a narrow strip of shoreline mangrove wetlands. Since mangroves are located adjacent to the site it is likely they would revegetate the new area.

4.6.3 Social

- a. **Cultural Resources.** There is a possibility that cultural resources may exist under the berms that could be affected by the restoration project. If cultural resources are located during construction activities, procedures under 36 CFR Part 800.13 will be initiated.
- b. **Aesthetics.** There would be a minor adverse impact on aesthetics from the presence and operation of dredging equipment since the work would be located adjacent to a public highway.
- c. **Recreation.** There would be a minor impact on recreational fishing during the dredging, and recreational boat traffic in the area. There would be a substantial interruption to fishing and bird watching along this shoreline. There would be a long-term beneficial impact by increasing the amount of bird habitat used for feeding and loafing.

4.6.4 Economics

- a. **Economics.** There would be a short-term stimulus to the local economy during construction from the sale of goods and services in support of the maintenance and construction.

- b. Navigation.** There would be a minor short-term disruption to recreational boat traffic during dredging and fill placement.

4.6.5 Cumulative Impacts

There would be a beneficial cumulative impact from the creation of wetlands with Tampa Bay. If this were done with other dredged material from the federal projects a substantial amount of habitat would be created or restored.

4.6.6 Unavoidable Effects.

There would be a loss of open-water habitat and some turbidity generated.

4.6.7 Irreversible and Irretrievable Commitment of Resources.

The only long-term commitment of resources would be the expenditure of fuel to support the work.

4.6.8 Relationship of Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity.

There would be a short-term effect from the placement of material in the open-water and the associated loss of deep-water habitat. However, in the long-term there would be the creation of 8 acres of saltmarsh habitat, which is considered to be more productive.

5 LIST OF PREPARERS

Name	Job title	Years Experience	NEPA Participation
William J. Fonferek	Biologist	23 years	NEPA preparation, coordination, endangered species consultation
Tommy Birchett	Archeologist	22 years	Cultural Resources Assessment
Glenn Schuster	Civil Engineer	22 years	Water Quality Assessment
Peter Besrutchko	Environmental Engineer	10 years	HTRW Assessment
Terrance Artrip	Civil Engineer	6 years	Study Manager
Brian Pridgeon	Biologist		US Fish and Wildlife Coordination Act Report
Emilio Gonzalez	Civil Engineer	1 year	Project Manager

6 COORDINATION WITH OTHERS

6.1 INTRODUCTION.

This section provides information on how the development and planning of this proposed action was coordinated with concerned agencies and interested parties during initial site selection through the preliminary development of this document.

6.2. Scoping

A scoping letter dated May 25, 1999, was sent to all interested parties including adjacent property owners, state and local governments and federal agencies.

6.3. James H and Rosemary Turley.

A letter dated June 14, 1999, was received from James H. and Rosemary Turley to consider bank stabilization as part of the project.

RESPONSE: The purpose of the project is to restore habitat within the project. If erosion is occurring, it will be brought to the attention of the local sponsor who is responsible for maintenance.

6.4. National Marine Fisheries Service.

The National Marine Fisheries Service responded to the scoping letter by letter dated June 24, 1999, stating support for the efforts and recommended continued involvement with the Agency on Bay Management.

6.5. Florida State Historic Preservation Officer

A coordination letter was received from the State Historic Preservation Officer (SHPO) dated June 8, 1999 (DHR Project File No. 992348), identified the presence of four archeological sites within the project area. The current conditions of the sites were unknown. The SHPO recommended these sites be avoided by project activities.

RESPONSE: A cultural resources survey was conducted to determine any of these sites would be effected by project activities. Only site 8HI76 was determined to be in the project area and has been destroyed by previous development and erosion. No additional new sites were discovered during the survey.

6.6. Ayres and Associates.

Ayres and Associates responded to the scoping letter by letter dated August 9, 1999, stated they were under contract by Hillsborough County to develop a Watershed Management Plan for this watershed. They also appreciated the opportunity to further coordinate with the Corps.

6.7. Teco Energy, Inc.

Teco Energy responded to the scoping letter by letter dated August 11, 1999 on behalf of the Bay Area Environmental Action Team (BAEAT). BAEAT expressed their overall support for the restoration of the Palm River.

7 ENVIRONMENTAL COMMITMENTS

7.1. Manatee Protection.

The Standard State and Federal manatee protection conditions will be implemented. In addition, if a clamshell dredge is used, a dedicated observer will be used to monitor for manatees and will document the presence of manatees using a video camera.

7.2. Turbidity.

During open water placement for wetland creation and dredging, turbidity standards will be met.

7.3. Seagrass Protection.

The standard seagrass protection measures would be implemented which would not allow disruption to the beds from anchoring or inadvertent disturbance from construction equipment.

7.4. Migratory Bird Protection.

If construction were to occur during the migratory bird nesting season, a migratory protection plan would be implemented. This would include monitoring of all construction zones for bird nesting. If nesting were to occur, the sites would be marked and avoided until young birds had fledged.

7.5. Cultural Resource Protection

If cultural resources are discovered during construction activities, procedures under 36 CFR Part 800.13 will be initiated.

8 SOURCES CITED OR UTILIZED

Council on Environmental Quality. 1994. *Procedures for the Implementation of the National Environmental Policy Act*. 40 CFR 1500 et seq.

Department of the Army Jacksonville District, Corps of Engineers Jacksonville, Florida. April 1980. *Navigation Study for Tampa Harbor, Big Bend Channel, and Alafia River, Florida. Reconnaissance Report - 10128 (Stage I)*.

Florida Game and Fresh Water Fish Commission. *Official Lists of Endangered and Potentially Endangered Fauna and Flora in Florida*. 1 August 1997. Prepared by T.H. Logan.

Florida Marine Research Institute, January 1995. Fisheries Independent Monitoring Report. MacDill Borrow Pit data.

HDR Engineering, Inc. March 1994. *Environmental Assessment of the Palm River, Tampa/Hillsborough County, Florida*.

- Kale, H.W., II, and D.S. Maehr. 1990. *Florida's Birds - A Handbook and Reference*. Pineapple Press. Sarasota, FL.
- Lewis, R.R., III, M. D. Moffler, and R. C. Phillips. 1984. *Seagrass Meadows of Tampa Bay-Review (draft)*. Tampa, Florida.
- Paul, Richard. 1991. Personal correspondence. Audubon Society, Tampa, Florida.
- Peters and McWilliams, 1998. Draft Report, *Prerestoration Monitoring of Fishes in a Borrow Pit Having Tidal Connection to Tampa Bay, Florida*.
- Peterson, R.T. 1980. *Eastern Birds, 4th edition*. Houghton Mifflin Company, Boston, MA
- Scurlock, J.P. 1987. *Native Trees and Shrubs of the Florida Keys*. Laurel Press, Inc. Bethel Park, PA
- Springer and Woodburn. January 1960. *An Ecological Study of the Fishes of the Tampa Bay Area*.
- Tampa Bay Management Study Commission, Tampa Bay Regional Planning Council. *The Future of Tampa Bay*.
- Taylor Biological Company. July 1973. *Biological Studies and Inventory Tampa Harbor - Florida Project*
- US Fish and Wildlife Service. 1984. Tampa Bay Environmental Atlas. Biological Report 85(15).
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, NOAA Estuarine Programs Office. February 1989. NOAA Estuary-of-the-Month Seminar Series NO. 11. Tampa and Sarasota Bays: Issues, Resources, Status, and Management.
- U.S. Army Engineer Waterways Experiment Station. April 1978. Dredged Material Research Program Technical Report D-78-14. *Colonial Bird Use and Plant Succession of Dredged Material Islands in Florida. Vol. II: Patterns of Plant Succession*.
- US Fish and Wildlife Service, Department of the Interior. June 1986. *Mitigation Options for Fish and Wildlife Resources Affected by Port and Other Water-Dependent Developments in Tampa Bay, Florida*.
- U.S. Army Corps of Engineers, Jacksonville District. September 1984. *Tampa Harbor - Alafia River and Big Bend Channel Florida. Feasibility Report and Environmental Impact Statement*.

U.S. Army Engineer Waterways Experiment Station. April 1978. Dredged Material Research Program Technical Report D-78-14. *Colonial Bird Use and Plant Succession of Dredged Material Islands in Florida. Vol. I: Sea and Wading Bird Colonies.*

U.S. Army Engineer Waterways Experiment Station. December 1978. Dredged Material Research Program. *Development and Management of Avian Habitat on Dredged Material Islands.*

U.S. Army Engineer Waterways Experiment Station. December 1978. Dredged Material Research Program. *An Introduction to Habitat Development on Dredged Material.*

U.S. Army Corps of Engineers, Jacksonville District. May 2002. *Phase I Cultural Resources Survey, Palm River Restoration, Hillsborough County, Florida.* Draft report submitted by New South Associates, Stone Mountain, Georgia.

U.S. Army Corps of Engineers, Jacksonville District. September 1994. Tampa Harbor - Big Bend Channel. Draft Feasibility Report and Environmental Assessment.

U.S. Army Corps of Engineers, Jacksonville District. July 1986. Tampa Harbor, Florida. General Design Memorandum. Branch Channels.

U.S. Army Engineer Waterways Experiment Station. October 1983. *Tampa Bay Dredged Material Disposal Site Analysis.*

United States Department of the Interior Geological Survey. 1980. *Preliminary Simulated Tidal Flow and Circulation Patterns in Hillsborough Bay, Florida.*

U.S. Department of the Interior Fish and Wildlife Service. December 1984. *Tampa Bay Environmental Atlas.*

U.S. Department of the Interior Fish and Wildlife Service. September 1988. *The Ecology of Tampa Bay, Florida: An Estuarine Profile.*

United States Geological Survey Water-Supply Paper 2282. 1987. *Tidal-Flow, Circulation, and Flushing Changes Caused by Dredge and Fill in Tampa Bay, Florida.*

United States Department of the Interior Fish and Wildlife Service. Fishery Bulletin, Volume 65 No. 2.

U.S. Environmental Protection Agency. April 1995. *Final Environmental Impact Statement for the Designation of an Ocean Dredged Material Disposal Site Located Offshore, Tampa, Florida.*

U.S. Army Corps of Engineers, Jacksonville District. 1995. Draft Dredged Material

Management Plan, Tampa Harbor.

US Fish and Wildlife Service. 1987. *Endangered and Threatened Species of Southeastern United States. Region 4, Atlanta, Georgia.*

Ward, D.B. (ed.) 1992. *Rare and Endangered Biota of Florida, Volume V. Plants.* Florida Committee of Rare and Endangered Plants and Animals. University Presses of Florida. Gainesville, FL.

Wunderlin, R.P. 1982. *Guide to the Vascular Plants of Central Florida.* University Presses of Florida. Tampa, FL.

Water and Air Research . March 1995. Second Interpretive Report Tampa Bypass Canal and Hillsborough River, Hydro-Biological Monitoring Program.

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APPENDIX I

ENDANGERED SPECIES CONSULTATION AND FISH AND
WILDLIFE COORDINATION ACT REPORT



United States Department of the Interior

FISH AND WILDLIFE SERVICE

6620 Southpoint Drive South
Suite 310
Jacksonville, Florida 32216-0958

IN REPLY REFER TO:
FWS/R4/ES-JAFL

October 22, 2001

Mr. James C. Duck
Chief, Planning Division
US Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019


ATTN: Mr. Bill Fonferek

Dear Mr. Duck:

In accordance with an FY 1999 funding agreement with the U.S. Army Corps of Engineers' Jacksonville District, the U.S. Fish and Wildlife Service (Service) is submitting the enclosed final Fish and Wildlife Coordination Act Section 2(b) Report with reference to the Palm River Restoration, Hillsborough County, Florida Project for your review. Included in the final report is the required section 7 consultation for the Endangered Species Act.

If you have a question about this report, please contact either Don Palmer at (904) 232-2580, ext. 115 or Bryan Pridgeon at (727) 570-5398, ext. 13.

Sincerely,


For Peter M. Benjamin
Assistant Field Supervisor

Enclosure

cc with enclosure:
David Dale, NMFS, St. Petersburg
M. Duncan/FDEP/BPSM
J. Beever/GFC/Punta Gorda
Jan Platt, County Commissioner, Hillsborough County
Peter Clark, Tampa BayWatch

FISH AND WILDLIFE COORDINATION ACT SECTION 2(b), REPORT

INTRODUCTION

The U.S. Fish and Wildlife Service (Service) has reviewed the Preliminary Restoration Plan and other information related to the Tampa By-Pass Canal, Hillsborough County, Florida, Palm River Restoration Feasibility Study. The U.S. Army Corps of Engineers (Corps) is studying the feasibility of restoring oligohaline estuarine habitat within portions of the Palm River which is part of the Tampa Bypass Canal (C-135), a feature of the Four Rivers Basin Flood Control Project, from McKay Bay to Control Structure S-160.

This final report documents the fish and wildlife resources of the proposed project area, the anticipated effects of the project on those resources, and recommends potential habitat restoration measures. It has been prepared pursuant to a Fiscal-Year 1999 scope-of-work agreement between the Service and the Corps, and is provided in accordance with Section 2(b) of the Fish and Wildlife Coordination Act. Also incorporated in this report is the Service's biological opinion regarding the effects of the proposed project on federally listed species in the project area, pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

PROJECT DESCRIPTION

The Palm River discharges into McKay Bay in the northeast of the Tampa Bay system (Figure 1). Prior to the 1920's the two dredged channels now known as the Tampa Bypass Canal and the Palm River were a continuous channel known as Six Mile Creek (HDR Engineering 1994). During the 1920's the lower two miles of the channel became known as the Palm River. Where it entered McKay Bay, the Palm River was about 650 feet wide. The river's channel width varied from 200 to 400 feet for about three-fourths of a mile upstream from the mouth before rapidly narrowing to less than 100 feet. It was about 50 feet wide where structure S -160 is located today, three miles upstream of the mouth. The river's depth decreased from 5-6 feet at its mouth to 3-4 feet less than a half mile upstream.

Severe flooding associated with heavy rains in the spring of 1960 prompted the development of the Four River Basins Project, a flood control project for the Oklawaha, Withlacoochee, Peace and Hillsborough River basins. Constructing the Tampa Bypass Canal and dredging the Palm River were components of that project. When the Corps dredged the Palm River they deposited the dredged material in several sites adjacent to the river. Dredging and spoil disposal dramatically altered the habitats in and adjacent to Six Mile Creek. Restoring some of the habitats lost to the project is the purpose of this project. Three restoration approaches are included in the Preliminary Restoration Plan: excavating upland sites to intertidal elevations, constructing littoral shelves, and removing the berm beneath the Highway 41 bridge. The first two approaches are intended to restore intertidal and shallow submerged habitats and the third is intended to improve water quality by enhancing circulation. The three upland sites identified by the Corps as potential intertidal habitat restoration sites, the sites for the littoral shelves, and the Highway 41 bridge are shown on Figure 2.

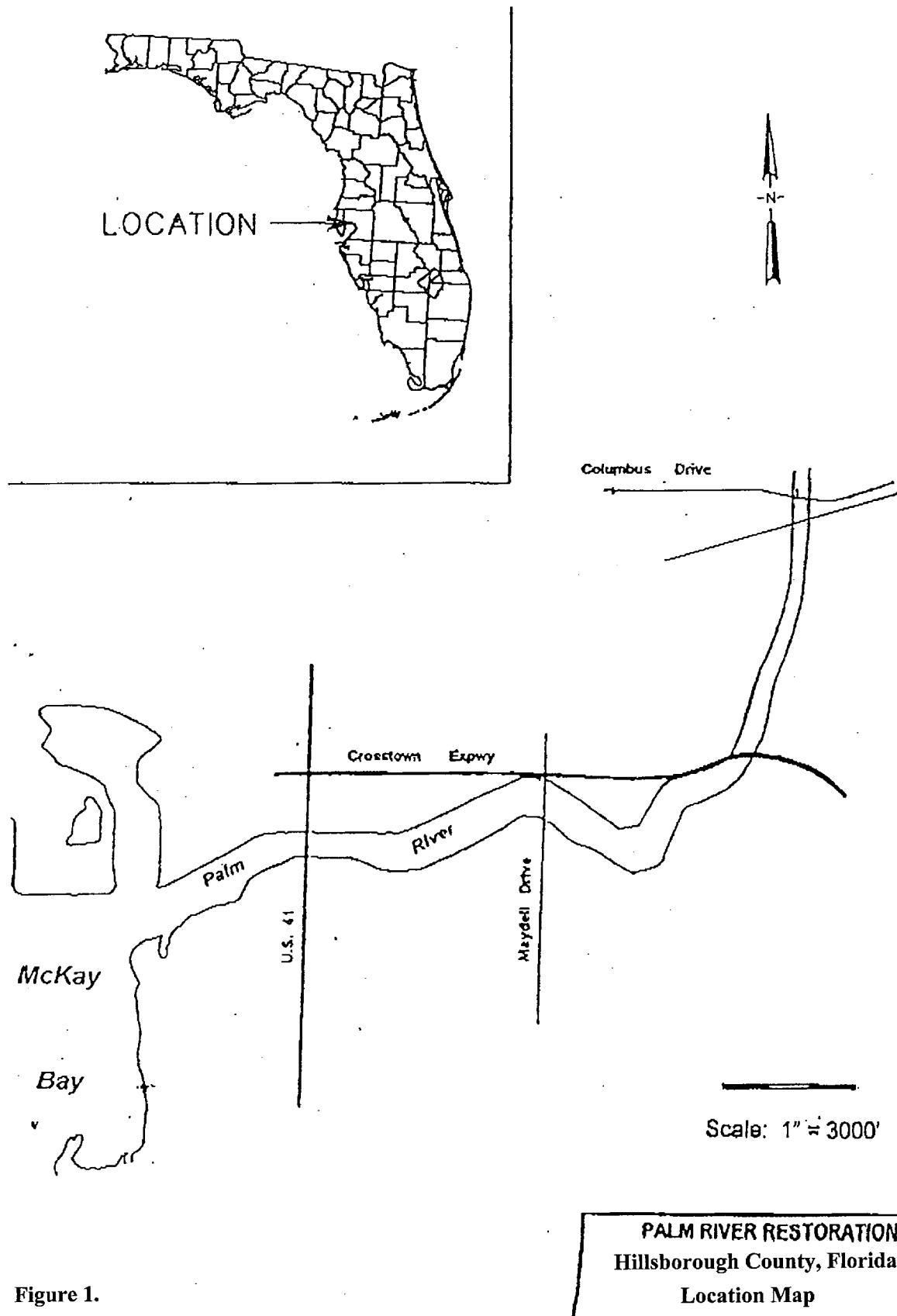


Figure 1.

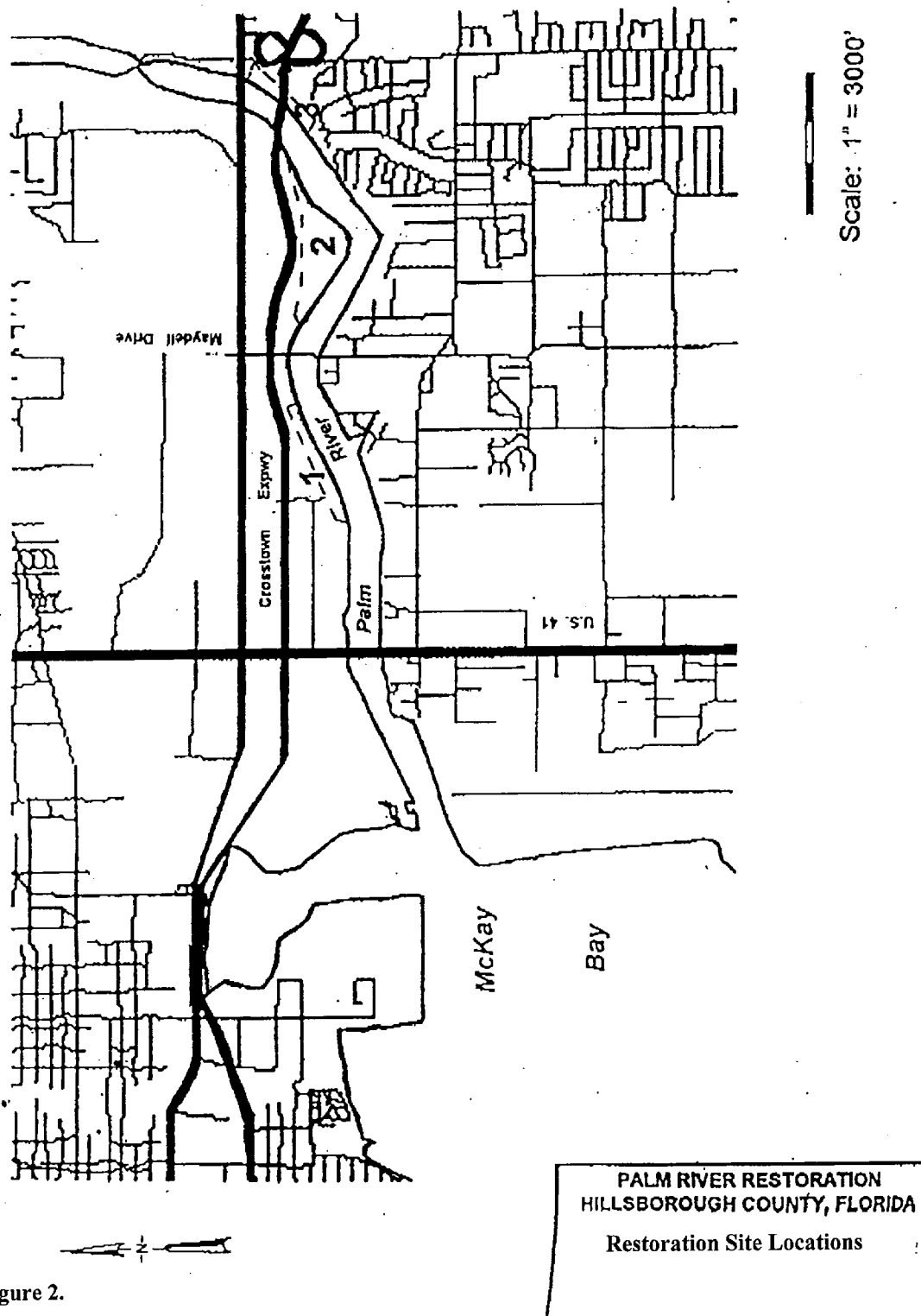


Figure 2.

Intertidal habitats would be restored by excavating the disposal sites to a one foot elevation and cutting

meandering tidal channels into each of the restoration sites. The channels will be approximately 1.5 feet deep (NGVD) with a bottom width of 3 feet and a top width of 23 feet, and will cover about 10% of the area of each site. Exotic vegetation will be removed and native coastal plants will be planted at the restoration sites.

Littoral shelves are proposed for construction along the channel adjacent to each of the restoration sites. Their sizes will depend on the amount of suitable fill material that is available and on the constraints imposed by the channel's flood control function. A proposed typical cross section (Figure 3) shows a shelf width of 100 feet with a depth of -3.6 feet.

When the Palm River was dredged a berm was left beneath the Highway 41 bridge to protect the integrity of its foundation. It is about 100 feet wide, 400 feet long (two-thirds of the bridge's length), and its depth is approximately -5 feet (NGVD). The proposal is to dredge the berm to a depth of -20 feet and support the bridge piers with riprap if necessary.

Study Area Description

The study area includes the Palm River and adjacent habitats from structure S-160 to McKay Bay, a distance of about 3 miles (Figure 1). It is generally an incised, trapezoidal channel, with a berm 5-6 feet high as its shoreline, steep banks, a 500 to 550 feet top width and 20 feet depth. Aquatic habitat is limited by the smooth shorelines, steep banks offering little littoral habitat, suboptimal water quality and lack of channel complexity. Terrestrial habitat is limited by commercial and residential development and vegetation maintenance on the berm along the river bank. The largest blocks of fish and wildlife habitat associated with the Palm River are north and south of its mouth, adjacent to McKay Bay.

From its mouth at McKay Bay to the Highway 41 bridge both shorelines are at natural elevations and shoreline vegetation is dominated by mangroves (*Avicennia germinans* and *Rhizophora mangle*). To the south is 160 acres of land owned by the Southwest Florida Water Management District on which three spoil disposal sites are located. The infrequently used disposal sites cover 85 acres. Their interiors contain large areas of shallow water and mud flats where the plant community composition is determined by flooding that occurs during rainy periods and by periodic dredged material disposal. Coastal hammock covers most of the remaining 75 acres, with a fringe of mangroves along the river and mosquito ditches dredged into the property. Cabbage palm (*Sabal palmetto*), live oak (*Quercus virginiana*) and American elm (*Ulmus americana*) are the dominant native vegetation in the hammocks, with Brazilian pepper (*Schinus terebinthifolius*) and woman's tongue tree (*Albizia lebeck*) common exotic species. To the north is 70 acres of fish and wildlife habitat; about 30 acres of intertidal habitat and 40 acres of coastal hammock. The intertidal habitats are dominated by mangroves with black needlerush (*Juncus roemerianus*) marsh and saltern habitat also present. Cabbage palm and live oak are the common coastal hammock species.

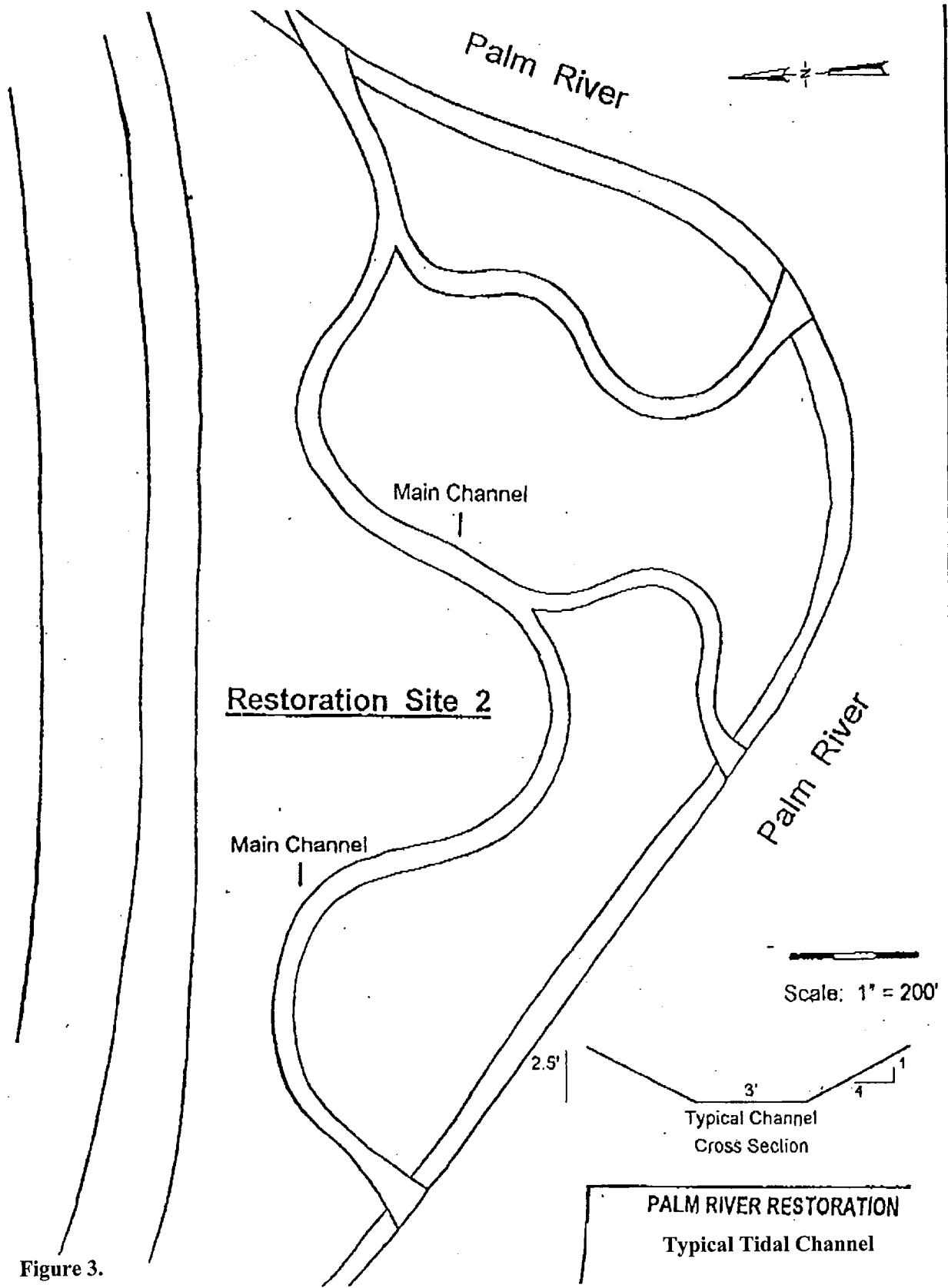


Figure 3.

Upstream of the Highway 41 bridge the south shoreline is largely developed with single residence houses, about 20 of which have piers in the river. Three creeks (Pine, Tampa and Brandon) enter the river on its south shore. All of them have developed watersheds and habitat improvements will be limited to small projects with individual landowners. Pine Creek is impounded about 100 yards upstream from its confluence with the river.

The river's north shoreline from the Highway 41 bridge to the CSX railroad trestle, about 1,300 feet, is dominated by mangroves and Brazilian pepper. Two tidal cuts lead from the river to wetland habitats to the north. They extend about 2,000 feet north of the Palm River and are divided into parcels with constricted connections by the Crosstown Expressway and State Road 60. Habitat varies from coastal marsh near the river to fresh oligohaline marsh north of State Road 60 where black needlerush dominates. Cattail (*Typha latifolia*), wax myrtle (*Myrica cerifera*), groundsel bush (*Baccharis halmifolia*) and cabbage palm are other species present north of State Road 60.

Upstream of the CSX trestle the north shoreline is steep, rising abruptly about 6 or 7 feet. From the CSX trestle to the Maydell bridge white mangroves (*Laguncularia racemosa*), black mangroves and Brazilian pepper form a thin shoreline strip. The top of the bank is a berm of closely mowed grass, with Brazilian pepper, cabbage palm, and oaks (*Quercus* spp.) behind. The Corps' proposed restoration site number one is within this reach, approximately 1,200 feet upstream of the trestle. It is about 1,500 feet long and includes the berm adjacent to the shoreline and a disposal mound that was created with material dredged from the Palm River. The disposal mound is triangular with a maximum width of about 550 feet and length of 1,100 feet. Vegetation on the disposal mound is dominated by cabbage palm and Brazilian pepper. The closed Palm River landfill is located along the upstream section of this reach and is periodically exposed by bank erosion.

The Corps proposed restoration site number 2 is on the north side of the channel upstream of the Maydell bridge. Shoreline vegetation is similar that of the previous reach with the addition of a thin strip of cattail and black needlerush at the high tide line. It also includes the maintained berm adjacent to the shoreline and a mounded disposal site. The disposal mound is triangular with a base of about 2,100 feet and maximum width of 900 feet. About 3,900 feet of shoreline are included in the restoration site. Groundsel bush is a dominant plant at this site, providing it with primarily brush habitat rather than the predominantly over story habitat seen at restoration site number 1. Other vegetation on the disposal mound includes Brazilian pepper, cabbage palm, and mulberry (*Morus* sp.).

Proposed restoration site number 3 is located on the east bank between the Crosstown Expressway and the mouth of Brandon Creek and has a shoreline length of about 800 feet. Scattered shoreline vegetation is present in Brazilian pepper and cattails. The adjacent land has been cleared and is vegetated with secondary growth dominated by Brazilian pepper, groundsel bush, and woman's tongue tree.

Although terrestrial and aquatic habitat is limited and highly altered from natural in the Palm River and McKay Bay many avian species may be encountered. The flats in McKay Bay and the

disposal cells south of the river's mouth provide habitat for migratory and wintering shorebirds and foraging sites for resident and migratory waterbirds. Many of the birds found in McKay Bay move to the spoil disposal cells when high tides cover the bay's flats and may be considered as common in both habitats (HDR Engineering 1994). A list of bird species recorded from McKay Bay is included as Appendix 1.

Aquatic resources in the Palm River are limited by a lack of habitat complexity and by sub-optimal water quality. The river channel is deeply incised with a very narrow (1-2 feet wide) littoral shelf in the areas where a shelf exists. By and large the river's side slopes are steep, descending from the elevated berm to the bottom with no slope change, giving the river a manicured appearance. Shoreline vegetation is sparse and is present above the high water line, offering minimal cover. The river's bottom has a slowly undulating depth of 17 to 20 feet from structure S-160 to its mouth, with prominent ridges beneath bridge crossings (HDR Engineering 1994). At stations located near the river's mouth and at the Highway 41 bridge, 97% of the sediments collected were mud and silt and it is likely that the river's substrate is predominantly very-fine grained. These physical attributes, taken in their combination, describe a channel that provides limited aquatic habitat.

When the river's water quality attributes are considered in conjunction with its physical characteristics, aquatic habitat declines further. HDR Engineering (1994) summarized water quality studies that had been conducted in the Palm River up to 1992. They reported that low dissolved oxygen concentrations were identified as the water quality issue of greatest concern and that water quality parameters had been improving since the 1970's. Data collected by the Hillsborough County Environmental Protection Commission from 1987-1998 (HCEPC unpublished) near structure S-160, from 1986-1998 at the Highway 41 bridge, and from 1976-1998 at the river's mouth show that bottom dissolved oxygen concentrations remain problematic. Bottom dissolved oxygen concentrations were below 4.0 mg/l in 87.6% of the samples collected near structure S-160, in 60.9% of the samples collected at the Highway 41 bridge, and in 53.3% of the samples collected at the river's mouth. Surface dissolved oxygen concentrations fall below 4.0 mg/l less often; 28.9% of the samples near structure S-160, 23.4% at Highway 41, and 10.4% at the mouth.

No fisheries data are available from the Palm River. The limited habitat availability and stressful dissolved oxygen concentrations indicate littoral species that can use small shoreline habitats may be present, that highly mobile open water species may be present, and that demersal species tolerant of low dissolved oxygen concentrations may be present. Table 1 lists sixteen species of importance to Gulf of Mexico fisheries that were collected from McKay Bay. A subset of that group may be present in the Palm River, including striped mullet, spot, Gulf killifish, longnose killifish, rainwater killifish, sailfin molly, bay anchovy, snook, tidewater silverside, and mojarra, as well as hardhead catfish (*Arius felis*) and Gulf menhaden (*Brevoortia patronus*) (personal observation).

Common Name	Scientific Name
tarpon	<i>Megalops atlanticus</i>
bay anchovy	<i>Anchoa mitchilli</i>
Gulf toadfish	<i>Opsanus beta</i>
Gulf killifish	<i>Fundulus grandis</i>
longnose killifish	<i>Fundulus similis</i>
rainwater killifish	<i>Lucania parva</i>
sailfin molly	<i>Poecilia latipinna</i>
tidewater silverside	<i>Menidia peninsulae</i>
common snook	<i>Centropomus undecimalis</i>
mojarra	Gerreidae
sheepshead	<i>Archosargus probatocephalus</i>
spotted seatrout	<i>Cynoscion nebulosus</i>
spot	<i>Leiostomus xanthurus</i>
red drum	<i>Sciaenops ocellatus</i>
silver mullet	<i>Mugil curema</i>
striped mullet	<i>Mugil cephalus</i>

Table 1. Fish of importance to Gulf of Mexico fisheries collected from McKay Bay (Sykes and Finucane 1966 as reported in HDR Engineering 1994)

The Palm River runs through an urban environment that limits the species of mammals present to those that are tolerant of human activities. Common species that may be observed near the river include opossum (*Didelphus marsupialis*), marsh rabbit (*Sylvilagus palustris*), eastern cottontail (*Sylvilagus floridanus*), gray squirrel (*Sciurus carolinensis*) and raccoon (*Procyon lotor*).

Discussion

The Palm River is a tributary to McKay Bay, a secondary bay on the Tampa Bay system. Both the river and McKay Bay have been greatly altered from their historical conditions. Construction of the 22nd Street Causeway in 1926-'27 effectively separated McKay Bay from Tampa Bay making it a separate water body (City of Tampa Parks Department *et al.* 1995) and restricted circulation through the bay and into the river. The river's hydrology was dramatically

changed when the Tampa Bypass Canal was constructed as a component of the Four River Basins Project. It resulted in the channelization, deepening and widening of the entire Palm River/Six Mile Creek channel. Intertidal and riparian habitats adjacent to McKay Bay and the Palm River were also filled for commercial and municipal projects as well as being used for dredged material disposal.

Prior to channelization the Palm River was a shallow stream that would have meandered through coastal wetlands and mangroves. With an average discharge of over 50 cubic feet per second (HDR Engineering 1994) through its relatively small channel it would have established a salinity gradient from fresh to estuarine values and provided physical conditions suitable for creating a suite of habitats. It is this mosaic of contiguous habitats that contribute to the typically great productivity of estuaries (Stickney 1984, Gomp and Seaman 1988, Day *et al.* 1989, Edwards 1991).

The proposed habitat restoration projects are directed toward reestablishing intertidal and littoral elevations, making suitable sites for revegetation with coastal wetland plant species. Approximately 10% of the surface area of each restoration site is planned for tidal channels to allow circulation through the systems. The channels are designed with a 3 feet bottom width at a depth of -1.5 feet and a top width of 23 feet at a 1 foot elevation. Including tidal channels and creeks in marsh restoration has been recognized as important for addressing fishery habitat needs (Minello *et al.* 1994, Kurz 1998). They provide access to the marsh surface (Minello *et al.* 1994, Peterson and Turner 1994) and refuge from predators for transient estuarine species (Cattrijsse 1994). Adding smaller tributary channels to the main tidal cuts will provide more marsh edge, and greater access to the marsh surface by species that are not marsh surface residents.

Coastal wetlands also offer important foraging sites for many species of shorebirds and wading birds. Tidal channels should be constructed to provide suitable feeding conditions for avifauna as well as providing aquatic habitat. The tidal channels are designed with a 4 to 1 side slope; rising 2.5 feet over a 10 feet on either side of the channel. Modifying the channel shape will improve avian habitat. Constructing a 2 to 1 side slope from the bottom to an elevation of 0.0 will require 3 feet horizontally. The remaining 7 feet of the design width would climb from the 0.0 elevation to a 1 foot elevation. This would offer a much flatter slope, opening up more feeding area for shorebirds and wading birds.

The stated goal of the restoration project is to “....create viable saltmarsh and mangrove habitat...”, but also recognizes the disproportionate loss of oligohaline habitats identified by the Tampa Bay National Estuary Program (Lewis Environmental Services and Coastal Environmental 1996). Freshwater sources of unknown quality and quantity are present to the north of the project. Several culverts beneath State Road 60 and the Crosstown Expressway connect the proposed restoration sites to remnant freshwater wetlands and runoff connections. The presence of cattails at restoration site 2 is evidence that there is some quantity of freshwater at that site. Salinities at the site were checked with a refractometer on September 2, 1999. Salinity in the Palm River was 23 parts per thousand and salinity of the groundwater in a pit dug within the cattail roots was 0.0. There is also the potential to find freshwater in Brandon Creek which abuts restoration site 3 on the south. All freshwater sources need to be researched so they

can be incorporated into the design of the restoration sites to maximize our opportunities to establish oligohaline habitats.

Extensive areas of shallow shoreline habitats have been lost to development and shoreline hardening in Tampa Bay; approximately 50% of its shoreline has been modified (Coastal Environmental 1994). The littoral shelves proposed will restore a habitat that has been severely impacted. Shallow subtidal sites provide potential locations for submerged aquatic vegetation growth and oyster beds to establish, both of which are extremely productive habitats and support unique community assemblages (Gomp and Seaman 1988, Zimmerman *et al.* 1989). Establishing littoral habitats will also provide foraging locations for water birds.

Developing contiguous intertidal and shallow subtidal elevations offers the potential for the natural establishment of a complex of habitats that will benefit Tampa Bay. Their benefits can be curtailed rapidly by the invasion of exotic vegetation, however, and disturbed soils provide fertile sites for their growth. It will be necessary for the project managers to implement a long-term, aggressive exotic vegetation control plan in order for native vegetation to establish.

Water quality in the bottom of the Palm River is notoriously poor. Removing the berm beneath the Highway 41 bridge is proposed to improve upstream water quality. At best it would improve to match existing downstream conditions and that would only occur for a short distance as the backwater effects from structure S-160 prevent upstream circulation. Striving to achieve the same water quality standards that exist in McKay Bay is striving to match a low standard. Hillsborough County Environmental Planning Commission water quality samples taken monthly from 1976 to 1998 exhibited bottom dissolved oxygen concentrations below 4 mg/l from 53.3% of their samples (HCEPC unpublished) and over the same period the highest dissolved oxygen concentration reported from April through October was 3.9 mg/l. With the restricted circulation of McKay Bay and the Palm River and the dissolved oxygen that occurs in Tampa Bay (Grabe 1997), providing additional channel prism from 10 to 20 feet deep is going to do little to improve water quality in the Palm River upstream of Highway 41.

Improving water quality in the Palm River to the point it will support the broad array of aquatic organisms that are present in Tampa Bay will require providing circulation to McKay Bay through the 22nd Street Causeway and shallowing the river itself. The volume of the Palm River from Highway 41 to structure S-160 and deeper than the berm at the bridge is used for on channel storage and is apparently not needed for transporting flood flows. The Palm River channelization project was completed in 1969 as part of the Four River Basins Project and the storage capacity may have been required as part of that project. That project has not been implemented as designed and the excess dredging of the Palm River may be unnecessary for existing flood control needs. Funds that would be spent in removing the Highway 41 berm for this restoration project should be used to determine the minimum channel capacity needed in the river and identifying dredged material sources for use in filling the existing excess capacity. That activity would address long term habitat restoration actions of great benefit to the Palm River and Tampa Bay.

Biological Opinion

The following represents the biological opinion of the U.S. Fish and Wildlife Service (Service) pursuant to Section 7(a) of the Endangered Species Act of 1973, as amended (Act) regarding the effects of the U.S. Army Corps of Engineers' (Corps) Palm River Restoration project on the Florida manatee (*Trichechus manatus latirostris*).

Consultation History

The Corps has not evaluated this project for effects on the Florida manatee.

BIOLOGICAL OPINION

Description of Proposed Action

Three restoration approaches are included in the Preliminary Restoration Plan: excavating upland sites to intertidal elevations, constructing littoral shelves, and removing the berm beneath the Highway 41 bridge. Intertidal habitats would be restored by excavating the disposal sites to a one foot elevation and cutting meandering tidal channels into each of the restoration sites. The channels will be approximately 1.5 feet deep (NGVD) with a bottom width of 3 feet and a top width of 23 feet, and will cover about 10% of the area of each site. Exotic vegetation will be removed and native coastal plants will be planted at the restoration sites.

Littoral shelves are proposed for construction along the channel adjacent to each of the restoration sites. Their sizes will depend on the amount of suitable fill material that is available and on the constraints imposed by the channel's flood control function. A proposed typical cross section (Figure 3) shows a shelf width of 100 feet with a depth of -3.6 feet.

When the Palm River was dredged a berm was left beneath the Highway 41 bridge to protect the integrity of its foundation. It is about 100 feet wide, 400 feet long (two-thirds of the bridge's length), and its depth is approximately -5 feet (NGVD). The proposal is to dredge the berm to a depth of -20 feet and support the bridge piers with riprap if necessary.

Status of the Species

The Endangered Species Conservation Act of 1969 (16 U.S.C. 668aa(c)) continued to recognize the West Indian manatee as endangered (35 FR 16047). The West Indian manatee was listed as an endangered species pursuant to the Endangered Species Act. The Federal government has recognized the threats to the continued existence of the manatee for almost 30 years. The Florida manatee was first listed as an endangered species in 1967 under the Endangered Species Preservation Act of 1966 (16 U.S.C. 668aa(c)) (32 FR 48:4001 in 1973, as amended. Critical habitat was designated for the manatee in 1976.

The Florida manatee is a native marine mammal restricted to the coastal waters of Florida and Georgia. Manatees are commonly found in bays, inlets, and rivers occurring in fresh, brackish,

and salt water environments. They are herbivorous, and prefer to feed on submerged aquatic vegetation.

At present, there are at least 2,639 manatees in Florida and Georgia. The only year-round populations of manatees in the United States occur throughout the coastal and inland waterways of peninsular Florida, and a small group that overwinters in extreme southeast Georgia. The population appears to be evenly divided between the Gulf and east coasts of Florida.

Manatee deaths resulting from human activities are well documented through a carcass recovery program initiated in 1974. Causes of death include collision with large and small boats, crushing by barges and man-made water control structures and navigation locks, entanglement in nets and lines, entrapment in culverts, poaching, and entanglement in and ingestion of marine debris (e.g., monofilament).

From 1974 through 1994, 2,456 manatee carcasses were recovered in the southeastern United States. Eight hundred and two (33 per cent) were attributed to human-related causes. Of these 613 were caused by collisions with watercraft, 111 were flood gate/canal lock-related, and another 78 were categorized as other human-related. Collision with watercraft accounted for 83 per cent of human-related causes of death during this period.

ENVIRONMENTAL BASELINE

Action Area

The action area for this biological opinion is defined as the immediate area of the project site. The project location is on the east side of Tampa Bay, in Hillsborough Bay, in the Palm River. Hillsborough Bay is a estuarine, open water environment with generally low tidal amplitudes, and extensive shallows. Characteristic vegetative shoreline communities are lacking in most areas due to the presence of heavy urbanization and industry. The bay bottom is extensively and routinely dredged for berthing and shipping channels. The Palm River is channelized with steep side slopes, extremely limited littoral habitat, and no submerged aquatic vegetation.

Status of Species in the Action Area

Aerial survey counts in Tampa Bay have increased steadily since 1984, due to better visibility from improved equipment, refined methodology, immigration from Crystal River, and a marginal population increase. Surveys from 1987-1994 indicate a total of 5358 sightings in Tampa Bay. A record high of 190 animals was observed at one time (1994). From 1987 through 1994, 1,539 and 229 were documented in Hillsborough Bay and the Big Bend areas respectively.

Manatees are present in Tampa and Hillsborough Bay to forage, frequent freshwater drinking sites, and to seek refuge in warm water outfall areas during the winter months. Manatees are also known to travel the Palm River. The immediate action area receives year round use, with residents reporting that manatees are seen in the river on a regular basis (Southwest Florida Water Management District 1990).

Thirty-two manatee mortalities are documented for Hillsborough Bay over a 18-year period (1977-1995). Many factors are attributed including watercraft, natural, perinatal, and undetermined. In that time, there were eight manatee mortalities in the action area. Two were determined as natural, four were undetermined, one was caused by watercraft, and one was perinatal. Manatee speed zone signs are placed in the Palm River.

The Palm River has no seagrass, but does harbor manatees and there is one recorded mortality in the Palm River (perinatal death) (HDR Engineering 1994). To adequately protect the manatees, we recommend the standard manatee construction conditions be made a condition of any work contract or Corps proposal for dredge and fill operations.

Effects of the Proposed Action

Dredging activities typically involve the use of either a standard clamshell dredge with a sealed bucket, or a hydraulic dredge with a cutter head. The possibility of the dredge head making contact with a manatee as it moves through the water column is a possibility. Manatees usually avoid areas of ongoing dredging operations. We also believe the 100-yard observation zone required in the standard construction conditions eliminates this hazard.

Vessels used in standard operations include a barge which houses the dredge, a tugboat to tow the barge, a storage barge to transport dredge material, and ancillary crew boats to service the barge. Barges in themselves are not considered a threat to manatees, as they move slowly through the water, giving adequate warning to manatees. Tugboats are more hazardous due to their powerful engines and propellers, which can "draw" a manatee to it, or cause injury from blades. Since the tugs are also relatively slow moving, manatees should be able to avoid impact. Small watercraft which commute through the work area several times a day to move personnel, or perform environmental monitoring, pose the most threat. Their small size and high speed prevent slow-moving manatees from avoiding a collision. This may result in injury or mortality. The standard conditions state all watercraft travel at idle/no wake speeds while in the construction area, and in water where the draft of the vessel provides less than a four-foot clearance from the bottom. Adherence to this condition is critical to avoid injury and /or mortality to manatees.

Cumulative Effects

Cumulative effects include the effects of future, state, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the Endangered Species Act.

The cumulative effect of actions that will increase the likelihood of manatees being struck by boats or dredge equipment include those actions that are not accounted or monitored for in the action area. The standard manatee conditions will be implemented. We are not aware of any other proposed private or state projects in the immediate vicinity. Adverse cumulative impacts on the endangered manatee can be minimized through crew awareness, education, and strict

adherence to the standard manatee precaution conditions.

Conclusion

After reviewing the current status of the Florida manatee, the environmental baseline for the action area, the effects of the proposed action, cumulative effects, and the fact that there are no documented watercraft-related or dredge-related mortalities in the action area, it is the Service's biological opinion that this project is not likely to jeopardize the continued existence of the Florida manatee, or adversely modify critical habitat.

INCIDENTAL TAKE

Sections 4(d) and 9 of the Endangered Species Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish and wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7 (b) (4) and 7 (o) (2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The Service does not anticipate that the proposed action will incidentally take any manatees. In the accompanying biological opinion, the Service determined that this is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat. If death or injury of a manatee occurs, dredging operations must cease, and the incident reported immediately to the Florida Marine Patrol at 1-800-DIAL-FMP and to the Service Jacksonville Field Office at (904) 232-2580 or Tampa sub-office (727) 570-5398.

CONSERVATION RECOMMENDATIONS

Section 7 (a) (1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

To minimize potential impacts to the manatee, the Service recommends that the following be made special conditions of the permit, if issued:

1. The standard manatee construction conditions be included in any contract issued for the work, and/or in the final Corps NEPA document, and implemented by all crew personnel.

2. Education pertaining to the manatee, including appearance, behavior, and actions which constitute a “taking” under the ESA be made a part of crew training.
3. The use of hydraulic dredge, especially in the winter months.
4. If a clamshell dredge is used in the winter months, we recommend its use during daylight hours only.

REINITIATION

This concludes formal consultation on the action outlined in the request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the action that may effect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an affect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take occurs, any operations causing such take must cease pending reinitiation.

Summary

Restoring intertidal and littoral habitats in the Palm River would benefit Tampa Bay by developing resources that are recognized for their loss throughout the bay system. It would also improve existing environmental conditions at the project site. Removing the berm beneath the Highway 41 bridge would improve water quality upstream, but only nominally given the marginal water quality of McKay Bay, the water body that would drive circulation in the river. In order to maximize project benefits, the Service provides the following recommendations:

- ✿ construct tributary channels to the main tidal cuts to improve internal circulation and access to the marsh surface;
- ✿ change tidal channel cross section to 3 to 1 side slope to elevation 0.0, then 7 to 1 from elevation 0.0 to elevation 1.0;
- ✿ identify and quantify all freshwater resources that can be incorporated into the restoration site designs in order to maximize oligohaline habitat development;
- ✿ the boundaries of the Palm River Landfill must be located so that it is avoided;
- ✿ determine the minimum Palm River channel volume needed for flood control purposes and identify dredged material sources for filling the excess capacity in order to improve water quality and aquatic habitat;

- ✿ develop and implement a long-term, aggressive exotic vegetation control program; and,
- ✿ implement manatee construction conditions in order to prevent effects to manatees

References

- Ackerman, B.B., S.D. Wright, R.K. Bonde, D.K. O'Dell, and D.J. Banowetz. 1995. Trends and patterns in mortality of manatees in Florida, 1974-1992. Pages 223-258 *in* T.J. O'Shea, B.B. Ackerman, and H.F. Percival, editors. Population Biology of the Florida manatee. National Biological Service Information and Technology Report 1.
- City of Tampa Parks Department, Tampa BayWatch, Tampa Audubon Society, Hillsborough County City-County Planning Commission, Bay Area Environmental Action Team, Peninsula Design & Engineering, Inc., Southwest Florida Water Management District, the Alafia River Basin Board. 1995. Strategic management initiative for McKay Bay: a comprehensive management plan. Florida Department of Community Affairs.
- Coastal Environmental Services, Inc. 1994. Physical impacts to habitats in Tampa Bay. Technical report #03-93. Tampa Bay National Estuary Program. St. Petersburg, Florida.
- Cattrijsse, A., E. Makwaia, G. Dankwa, O. Hamerlynck and M. Hemminga. 1994. Nekton communities of an intertidal creek of a European estuarine brackish marsh. *Marine Ecology Progress Series*, 109:195-208.
- Daly, J., Jr., C. Hall, M. Kemp and A. Yanez-Arancibia. 1989. *Estuarine ecology*. John Wiley and Sons. New York, New York.
- Edwards, R. 1991. Nursery habitats of important early juvenile fishes in the Manatee River estuary system of Tampa Bay. Pages 237-251 *in* S. Treat and P. Clark, editors. Proceedings Tampa Bay scientific information symposium 2. Tampa Bay Regional Planning Council, St. Petersburg, Florida.
- Gomp, G. and W. Seaman, Jr. 1988. Estuarine habitat and fishery resources in Florida. Pages 337-435 *in* W. Seaman, editor. Florida aquatic habitat and fishery resources. Florida Chapter of the American Fisheries Society, Eustis, Florida.
- Grabe, Stephen. 1997. Hydrographic conditions and dissolved oxygen status of the Tampa Bay estuarine system (September-October 1993-1996). Technical Publication #05-97. Tampa Bay National Estuary Program, St. Petersburg, Florida.
- HDR Engineering. 1994. Environmental assessment of the Palm River, Tampa/Hillsborough County, Florida. Palm River Management Committee, Florida.
- Kurz, R., R. Fenwick and K. Davis. 1998. A comparison of fish communities in restored and

- natural salt marshes in Tampa Bay, Florida. Southwest Florida Water Management District. Tampa, Florida.
- Lewis Environmental Services, Inc. and Coastal Environmental, Inc. 1996. Setting priorities for Tampa Bay habitat protection and restoration: restoring the balance. Submitted to the Tampa Bay National Estuary Program. Project T-94-03. Technical Publication No. 09-95. St. Petersburg, Florida.
- Minello, T., R. Zimmerman and R. Medina. 1994. The importance of edge for natant macrofauna in a created salt marsh. *Wetlands*, 14:184-198.
- Peterson, G. and R. Turner. 1994. The value of salt marsh edge vs interior as a habitat for fish decapod crustaceans in a Louisiana tidal marsh. *Estuaries* 17:235-262.
- Stickney, R. 1984. Estuarine ecology of the Southeastern United States and Gulf of Mexico. Texas A&M University Press. College Station, Texas.
- Zimmerman, R., T. Minello, T. Baumer and M. Castiglione. 1989. Oyster reef as a habitat for estuarine macrofauna. NOAA Technical Memorandum NMFS-SEFC-249. National Marine Fisheries Service, Galveston, Texas.

Appendix 1

Birds Recorded at McKay Bay

Data Provided By National Audubon Society

BIRDS RECORDED AT MCKAY BAY

<u>Common Name</u>	<u>Genus/Species</u>	<u>List</u>
Common Loon	<i>Gavia immer</i>	
Pied-billed Grebe	<i>Podilymbus podiceps</i>	
Horned Grebe	<i>Podiceps auritus</i>	
American White Pelican	<i>Pelecanus erythrorhynchos</i>	
Brown Pelican	<i>Pelecanus occidentalis</i>	SSC
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	
Anhinga	<i>Anhinga anhinga</i>	
Magnificent Frigatebird	<i>Fregata magnificens</i>	
American Bittern	<i>Botaurus lentiginosus</i>	
Least Bittern	<i>Ixobrychus exilis</i>	
Great Blue Heron	<i>Ardea herodias</i>	
Great Egret	<i>Casmerodius albus</i>	
Snowy Egret	<i>Egretta thula</i>	SSC
Little Blue Heron	<i>Egretta caerulea</i>	SSC
Tricolored Heron	<i>Egretta tricolor</i>	SSC
Reddish Egret	<i>Egretta rufescens</i>	SSC
Cattle Egret	<i>Bubulcus ibis</i>	
Green Heron	<i>Butorides striatus</i>	
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	
Yellow-crowned Night-Heron	<i>Nycticorax violacea</i>	
White Ibis	<i>Eudocimus albus</i>	SSC
Glossy Ibis	<i>Plegadis falcinellus</i>	
Roseate Spoonbill	<i>Ajaia ajaja</i>	SSC
Wood Stork	<i>Mycteria americana</i>	E
Fulvous Whistling Duck	<i>Dendrocygna bicolor</i>	
Mute Swan	<i>Cygnus olor</i>	
Snow Goose	<i>Chen caerulescens</i>	
Green-winged Teal	<i>Anas crecca</i>	
American Black Duck	<i>Anas rubripes</i>	
Mottled Duck	<i>Anas fulvigula</i>	
Mallard	<i>Anas platyrhynchos</i>	
Northern Pintail	<i>Anas acuta</i>	
Blue-winged Teal	<i>Anas discors</i>	
Northern Shoveler	<i>Anas clypeata</i>	
Gadwall	<i>Anas strepera</i>	
Eurasian Widgeon	<i>Anas penelope</i>	
American Widgeon	<i>Anas americana</i>	
Canvasback	<i>Aythya valisineria</i>	
Redhead	<i>Aythya americana</i>	
Ring-necked Duck	<i>Aythya collaris</i>	

Lesser Scaup	<i>Aythya affinis</i>	
Oldsquaw	<i>Clangula hyemalis</i>	
Black Scoter	<i>Melanitta nigra</i>	
Surf Scoter	<i>Melanitta perspicillata</i>	
White-winged Scoter	<i>Melanitta fusca</i>	
Bufflehead	<i>Bucephala albeola</i>	
Hooded Merganser	<i>Lophodytes cucullatus</i>	
Red-breasted Merganser	<i>Mergus serrator</i>	
Ruddy Duck	<i>Oxyura jamaicensis</i>	
Black Vulture	<i>Coragyps atratus</i>	
Turkey Vulture	<i>Cathartes aura</i>	
Osprey	<i>Pandion haliaetus</i>	
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T
Northern Harrier	<i>Circus cyaneus</i>	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	
Cooper's Hawk	<i>Accipiter cooperi</i>	
Red-shouldered Hawk	<i>Buteo lineatus</i>	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	
American Kestrel	<i>Falco sparverius</i>	T
Merlin	<i>Falco columbarius</i>	
Peregrine Falcon	<i>Falco peregrinus</i>	E
Northern Bobwhite	<i>Colinus virginianus</i>	
Clapper Rail	<i>Rallus longirostris</i>	
King Rail	<i>Rallus elegans</i>	
Virginia Rail	<i>Rallus limicola</i>	
Sora	<i>Porzana carolina</i>	
Common Moorhen	<i>Gallinula chloropus</i>	
American Coot	<i>Fulica americana</i>	
Limpkin	<i>Aramus guarauna</i>	SSC
Sandhill Crane	<i>Grus canadensis</i>	T
Black-bellied Plover	<i>Pluvialis squatarola</i>	
Snowy Plover	<i>Charadrius alexandrinus</i>	T
Wilson's Plover	<i>Charadrius wilsoni</i>	
Semipalmated Plover	<i>Charadrius semipalmatus</i>	
Piping Plover	<i>Charadrius melodus</i>	T
Killdeer	<i>Charadrius vociferus</i>	
American Oystercatcher	<i>Haematopus palliatus</i>	SSC
Black-necked Stilt	<i>Himantopus mexicanus</i>	
American Avocet	<i>Recurvirostra americana</i>	
Greater Yellowlegs	<i>Tringa melanoleuca</i>	
Lesser Yellowlegs	<i>Tringa flavipes</i>	
Solitary Sandpiper	<i>Tringa solitaria</i>	
Willet	<i>Catoptrophorus semipalmatus</i>	
Spotted Sandpiper	<i>Actitis macularia</i>	
Whimbrel	<i>Numenius phaeopus</i>	
Long-billed Curlew	<i>Numenius americanus</i>	

Marbled Godwit
 Ruddy Turnstone
 Red Knot
 Sanderling
 Semipalmated Sandpiper
 Western Sandpiper
 Least Sandpiper
 White-rumped Sandpiper
 Pectoral Sandpiper
 Dunlin
 Stilt Sandpiper
 Short-billed Dowitcher
 Long-billed Dowitcher
 Common Snipe
 Wilson's Phalarope
 Laughing Gull
 Bonaparte's Gull
 Ring-billed Gull
 Herring Gull
 Lesser Black-backed Gull
 Gull-billed Tern
 Caspian Tern
 Royal Tern
 Sandwich Tern
 Common Tern
 Forster's Tern
 Least Tern
 Black Tern
 Black Skimmer
 Rock Dove
 Mourning Dove
 Common Ground Dove
 Budgerigar
 Mangrove Cuckoo
 Common Barn Owl
 Eastern Screech Owl
 Barred Owl
 Short-eared Owl
 Common Nighthawk
 Chuck-will's-widow
 Whip-poor-will
 Chimney Swift
 Ruby-throated Hummingbird
 Belted Kingfisher
 Red-bellied Woodpecker
 Yellow-bellied Sapsucker

Limosa fedoa
Arenaria interpres
Calidris canutus
Calidris alba
Calidris pusilla
Calidris mauri
Calidris minutilla
Calidris fuscicollis
Calidris melanotos
Calidris alpina
Calidris himantopus
Limnodromus griseus
Limnodromus scolopaceus
Gallinago gallinago
Phalaropus tricolor
Larus atricilla
Larus philadelphia
Larus delawarensis
Larus argentatus
Larus fuscus
Sterna nilotica
Sterna caspia
Sterna maxima
Sterna sandvicensis
Sterna hirundo
Sterna forsteri
Sterna antillarum
Chlidonias niger
Rynchops niger
Columba livia
Zenaida macroura
Columbia passerina
Melopsittacus undulatus
Coccyzus minor
Tyto alba
Otus asio
Strix varia
Asio flammeus
Chordeiles minor
Caprimulgus carolinensis
Caprimulgus vociferus
Chaetura pelagica
Archilochus colubris
Ceryle alcyon
Melanerpes carolinus
Sphyrapicus varius

T

SSC

Downy Woodpecker
 Northern Flicker
 Pileated Woodpecker
 Eastern Phoebe
 Great Crested Flycatcher
 Eastern Kingbird
 Gray Kingbird
 Scissor-tailed Flycatcher
 Purple Martin
 Tree Swallow
 Bank Swallow
 Barn Swallow
 Blue Jay
 Fish Crow
 Carolina Chickadee
 Carolina Wren
 House Wren
 Sedge Wren
 Marsh Wren
 Ruby-crowned Kinglet
 Blue-gray Gnatcatcher
 Hermit Thrush
 American Robin
 Gray Catbird
 Northern Mockingbird
 Brown Thrasher
 American Pipit
 Cedar Waxwing
 Loggerhead Shrike
 European Starling
 White-eyed Vireo
 Solitary Vireo
 Black-whiskered Vireo
 Orange-crowned Warbler
 Cape May Warbler
 Yellow-rumped Warbler
 Yellow-throated Warbler
 Pine Warbler
 Prairie Warbler
 Palm Warbler
 Blackpoll Warbler
 Black-and-white Warbler
 American Redstart
 Ovenbird
 Northern Waterthrush
 Common Yellowthroat

Picoides pubescens
Colaptes auratus
Dryocopus pileatus
Sayornis phoebe
Myiarchus crinitus
Tyrannus tyrannus
Tyrannus dominicensis
Tyrannus forficatus
Progne subis
Tachycineta bicolor
Riparia riparia
Hirundo rustica
Cyanocitta cristata
Corvus ossifragus
Parus carolinensis
Thryothorus ludovicianus
Troglodytes aedon
Cistothorus platensis
Cistothorus palustris
Regulus calendula
Poliophtila caerulea
Catharus guttatus
Turdus migratorius
Dumetella carolinensis
Mimus polyglottus
Toxostoma rufum
Anthus rubescens
Bombycilla cedrorum
Lanius ludovicianus
Sturnus vulgaris
Vireo griseus
Vireo solitarius
Vireo altiloquus
Vermivora celata
Dendroica tigrina
Dendroica coronata
Dendroica dominica
Dendroica pinus
Dendroica discolor
Dendroica palmarum
Dendroica striata
Mniotilta varia
Setophaga ruticilla
Seiurus aurocapillus
Seiurus noveboracensis
Geothlypis trichas

Northern Cardinal
 Indigo Bunting
 Rufous-sided Towhee
 Chipping Sparrow
 Vesper Sparrow
 Lark Sparrow
 Savannah Sparrow
 Grasshopper Sparrow
 LeConte's Sparrow
 Sharp-tailed Sparrow
 Song Sparrow
 Swamp Sparrow
 White-crowned Sparrow
 Bobolink
 Red-winged Blackbird
 Eastern Meadowlark
 Boat-tailed Grackle
 Common Grackle
 Brown-headed Cowbird
 Purple Finch
 Pine Siskin
 American Goldfinch
 House Sparrow

Cardinalis cardinalis
Passerina cyanea
Pipilo erythrophthalmus
Spizella passerina
Pooecetes gramineus
Chondestes grammacus
Passerculus sandwichensis
Ammodramus savannarum
Ammodramus leconteii
Ammodramus caudacutus
Melospiza melodia
Melospiza georgiana
Zonotrichia leucophrys
Dolichonyx oryzivorus
Agelaius phoeniceus
Sturnella magna
Quiscalus major
Quiscalus quiscula
Molothrus ater
Carpodacus purpureus
Carduelis pinus
Carduelis tristis
Passer domesticus

E=Endangered

T=Threatened

SSC=Species of Special Concern

APPENDIX II

PUBLIC COORDINATION

Planning Division
Environmental Branch

9

TO WHOM IT MAY CONCERN:

The Jacksonville District, U.S. Army Corps of Engineers (Corps) has initiated a study to evaluate modifications to the Tampa By-Pass Canal, Palm River Section, McKay Bay to Structure S-160. We are seeking information about issues, concerns, resources, and opportunities associated with this study as it relates to water quality improvement and habitat restoration (see enclosed location map). We are considering removing an underwater berm under the US Highway 41 Bridge to increase tidal flushing of the area. In addition, we are looking at creating various types of habitat along the canal including littoral habitat for fish and saltmarsh for small fish and wading birds. We are requesting your ideas and input into this study in compliance with the National Environmental Policy Act. Information contained in your response will be used to help formulate a plan and to identify resources and impacts to those resources by the project.

The study will evaluate proposed modifications to an existing Federally authorized Flood Control Project. Any proposed modifications will not impact the purposes of the authorized project. The local sponsor for this project is the Southwest Florida Water Management District.

Please address your comments to:

U.S. Army Corps of Engineers
Chief, Planning Division
P.O. Box 4970
Jacksonville, Florida 32232-0019

If you have any questions regarding this notice, please contact Mr. Bill Fonferek at 904-232-2803.

Sincerely,

James C. Duck
Chief, Planning Division

Enclosure

June 14, 1999

U.S. Army Corps of Engineers
Chief, Planning Division
P.O. Box 4970
Jacksonville, Florida 32232-0019

Attn: James C. Duck

It was very good to have your letter dd May 25, 1999 re the study you are doing on the Palm River section of the Tampa By-Pass Canal. We were aware of the section under Palm River Bridge (U.S. Hwy. 41) that had not been dredged as deep as the river was on each side. This is very necessary.

The only suggestion that we have is that the banks of the river need rocks more where the tide affects than the area above the spillway that has been taken care of for that. The right-of-way on the south side has washed into the river and the palms that are standing will go when we have a rough tide.

We welcome any improvements.

Sincerely yours,

James H. Turley / Rosemary Turley

James H. Turley/Helen Rosemary Turley
511 - 50th Street So.
Tampa, Florida 33619-3619



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

June 24, 1999

Colonel Joe R. Miller, District Engineer
Jacksonville District Corps of Engineers
Planning Division, Environmental Branch
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Colonel Miller:

The National Marine Fisheries Service (NMFS) has reviewed your staff's letter, dated May 25, 1999, requesting information regarding habitat and water quality issues associated with the Palm River Section of the Tampa By-Pass Canal Flood Control Project in Hillsborough County, Florida. The Corps of Engineers (COE), along with the Southwest Florida Water Management District as the local sponsor, is investigating habitat restoration and water quality improvement opportunities that may be implemented without jeopardizing the flood control aspects of this project.

Several long-standing committees in the Tampa Bay area, including the Bay Area Environmental Action Team (BAEAT), the Palm River Management Committee (PRMC), and the Habitat Restoration Subcommittee of the Tampa Bay Regional Planning Council's Agency on Bay Management (ABM) have invested considerable resources in developing management plans and identifying habitat restoration and water quality improvement opportunities along the lower reach of the Palm River. A single point of contact for information on each of these three committees is Mr. Bob Musser of Tampa Bay Watch at 727/896-5320. Also, Mr. Peter Clark, of Tampa Bay Watch, currently serves as the Chair of the ABM's Habitat Restoration Subcommittee which was involved in the early efforts to garner support and identify opportunities for this project. The COE has been an active and valuable participating member on the ABM and we recommend that the COE continue to utilize this forum throughout the various phases of this project.

If we can be of further assistance, please advise. Related comments, questions or correspondence should be directed to Mr. David N. Dale in St. Petersburg, Florida. He may be contacted at 727/570-5311 or at the letterhead address above.

Sincerely,

Andreas Mager, Jr.
Assistant Regional Administrator
Habitat Conservation Division



cc:

FWS-St. Petersburg (B. Pridgeon)

FDEP-Tampa (S. Ingold)

SWFWMD-Tampa (B. Henningsen)

TBRPC-St. Petersburg (S. Cooper)

Tampa BayWatch (P. Clark)

F/SER4

F/SER43-St. Pete

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FLORIDA DEPARTMENT OF STATE

Katherine Harris

Secretary of State

DIVISION OF HISTORICAL RESOURCES

June 8, 1999

Mr. James C. Duck
Planning Division, Environmental Branch
Jacksonville District Corps of Engineer
P. O. Box 4970
Jacksonville, Florida 32232-0019

RE: DHR Project File No. 992348
Cultural Resource Assessment Request
Environmental Restoration of Palm River - 2.5 Mile Segment (Canal 135) from
McKay Bay to Structure 160 (on Map) - Restoration of Three Upstream Sites and
Removal of Underwater Berm beneath U.S. Highway 41 Bridge
Hillsborough County, Florida

Dear Mr. Duck:

In accordance with the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places. The authority for this procedure is the National Historic Preservation Act of 1966 (Public Law 89-665), as amended.

We concur that due to previous deep dredging, project activities located within the Palm River will have no effect on historic properties listed, or eligible for listing, in the National Register of Historic Places. We note that cultural resource investigations will be conducted in the restoration site project areas and littoral project areas. We look forward to coordinating the results of these surveys with your office.

A review of the Florida Site File indicates that four archaeological sites (8HI76, Palm River Site, 8HI103, Skipper Avenue Bridge Site, 8HI410, C-12 Sites, and 8HI 412, C-10 Site), are located within the proposed project area (location map enclosed). The current condition of these sites is not known and they may have been impacted by dredging and shore widening activities in the 1960's. However, it is the recommendation of this office that these sites be avoided by project activities. If avoidance is not possible then further testing will be necessary in coordination with this office. If the above conditions are met, it is the opinion of this office the proposed project will have no effect on historic properties listed, or eligible for listing, in the National Register of Historic Places.


R.A. Gray Building • 500 South Bronough Street • Tallahassee, Florida 32399-0250 • <http://www.flheritage.com>

<input type="checkbox"/> Director's Office (850) 488-1480 • FAX: 488-3355	<input type="checkbox"/> Archaeological Research (850) 487-2299 • FAX: 414-2207	<input checked="" type="checkbox"/> Historic Preservation (850) 487-2333 • FAX: 922-0496	<input type="checkbox"/> Historical Museums (850) 488-1484 • FAX: 921-2503
<input type="checkbox"/> Historic Pensacola Preservation Board (850) 595-5985 • FAX: 595-5989	<input type="checkbox"/> Palm Beach Regional Office (561) 279-1475 • FAX: 279-1476	<input type="checkbox"/> St. Augustine Regional Office (904) 825-5045 • FAX: 825-5044	<input type="checkbox"/> Tampa Regional Office (813) 272-3843 • FAX: 272-2340

Mr. Duck
June 8, 1999
Page 2

If you have any questions concerning our comments, please contact Ms. Robin Jackson, Historic Sites Specialist at (850) 487-2333 or 1-(800) 847-7278. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

for 

George W. Percy, Director
Division of Historical Resources
and
State Historic Preservation Officer

GWP/Jrj
Enclosures (1)



August 9, 1999

Mr. James C. Duck
Chief Planning Division
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Re: Study to Evaluate Modifications to the Tampa By-Pass Canal, Palm River Section,
McKay Bay to Structure S-160

Dear Mr. Duck:

The following is in response to your letter dated May 25, 1999 regarding the referenced USACE Project.

Ayres Associates is currently under contract with Hillsborough County to develop a Watershed Management Plan for the Hillsborough River and Tampa By-Pass Canal. Our project focuses on four primary areas including flood control, water quality, habitat restoration, and water supply enhancement. Initially, the project will establish the existing conditions of the watershed, followed by the development of alternatives and recommendations for improving areas that do not meet the Counties minimum level of service.

Therefore, we would greatly appreciate the opportunity to further coordinate with the USACE. For more information on our project, we have a project website that also includes a project schedule. The address is www.hillsboroughriver.org. Hillsborough Counties project manager is Mr. Elie Araj, P.E. who can be reached at (813) 272-5912.

If you have any questions regarding the Hillsborough River / Tampa By-Pass Canal Watershed Management Plan project, please feel free to contact me directly at (813) 558-3307. We will also contact Mr. Bill Fonferek of your office in the near future.

Sincerely,
Owen Ayres & Associates

A handwritten signature in black ink, appearing to read "Carl H. Irwin".

Carl H. Irwin, III, P.E.
Project Manager

cc: Elie Araj – Hillsborough County
File – 300323.00

FOUNDATION

August 11, 1999

JULIUS F. HOBBS
EXECUTIVE DIRECTOR

US Army Corps of Engineers
Chief, Planning Division
P.O. Box 4970
Jacksonville, FL 32232-0019

Re: Palm River Restoration Project

To Whom It May Concern:

On behalf of the Bay Area Environmental Action Team (BAEAT) I am forwarding this letter to you concerning the proposed Palm River Restoration Project. The BAEAT would like to express their overall support for the restoration of the Palm River, the Tampa Bay tributary with the poorest water quality.


The BAEAT is a group of local representatives of business and government agencies who have a keen interest in collaborating to enhance the quality of life for local citizens and, at the same time, enhance the quality of wetlands and uplands in and around Tampa Bay. The Palm River and McKay Bay watersheds have been a target for many years for the ASEST members. Since the completion of a "Strategic Management Initiative for McKay Bay" in 1995, great strides have been made in resource management, acquiring environmentally sensitive lands, and improving public access and user of the area. The members of BAEAT and the community at large view the Palm River and McKay Bay as a single entity, dependent on one another, and affecting each other. Along this line, projects to restore and protect the Palm River will contribute to major improvements not only in McKay but East Bay, Hillsborough Bay and eventually Tampa Bay as well.

In addition to habitat restoration and water quality improvement projects suggested by the Army Corps of Engineers under the 1135 Program, the BAEAT would like to forward the following suggestions. In line with the ACOE suggestions, increasing tidal flushing, improving water quality, and creating wildlife and fishery habitat along the canal shoreline should be priority. Eliminating the low oxygen conditions present for the majority of the year in the lower third of the rivers water column should also be a priority. In addition to increasing marsh habitat it was suggested to incorporate mudflats into the design. Also utilizing the available freshwater from non-profit source (stormwater) runoff to increase freshwater flow should be investigated. Lastly, there is the opportunity for additional land purchases to increase the restoration effort. The Corps should coordinate with local and state land acquisition programs to consolidate funding and increase efforts.

Thank you for your interest in the Tampa Bay area. The members of BAEAT stand ready to assist you in anyway possible. If I can be of further service, please feel free to contact me at 813-228-4273.

Sincerely yours
for a better Tampa Bay,

C: Bill Fonferek
Vern Gwin
BAEAT Members


Julius Hobbs
Chairman
Bay Area Environmental Action Team

TECO ENERGY, INC.
P.O. BOX 111
TAMPA, FL 33601-0111
813-228-4273 FAX 813-228-1691
JFHOBBS@TECOENERGY.COM

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Department of Revenue
Department of Law Enforcement
Department of Highway Safety and Motor Vehicles
Department of Veterans' Affairs

FLORIDA DEPARTMENT OF STATE
Katherine Harris
Secretary of State
DIVISION OF HISTORICAL RESOURCES

Mr. James C. Duck
Jacksonville District US Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

July 15, 2002

Re: DHR No. 2002-06791 / Date Received by DHR: July 5, 2002
*Phase I Cultural Resources Survey, Palm River Restoration, Hillsborough County,
Florida (New South Associates 2002) – Draft Report*


Dear Mr. Duck:

Our office has received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and 36 C.F.R., *Part 800: Protection of Historic Properties*. The State Historic Preservation Officer is to advise and assist federal agencies when identifying historic properties listed or eligible for listing in the *National Register of Historic Places*, assessing effects upon them, and considering alternatives to avoid or minimize adverse effects.

No evidence of previously recorded archaeological site 8HI76, or any other historic property, was identified during the survey. It is the opinion of New South Associates that the proposed development will have no effect on any historic properties eligible for listing in the *National Register of Historic Places*. Based on the information provided, this office concurs with this determination and finds the submitted draft report complete and sufficient.

If you have any questions concerning our comments, please contact Mary Beth Fitts, Historic Sites Specialist, at mbfitts@mail.dos.state.fl.us or (850) 245-6333. Your interest in protecting Florida's historic properties is appreciated.

Sincerely,


Janet Snyder Matthews, Ph.D., Director, and
State Historic Preservation Officer

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

☐ Director's Office
(850) 245-6300 • FAX: 245-6435

☐ Archaeological Research
(850) 245-6444 • FAX: 245-6436

☒ Historic Preservation
(850) 245-6333 • FAX: 245-6437

☐ Historical Museums
(850) 245-6400 • FAX: 245-6433

☐ Palm Beach Regional Office
(561) 279-1475 • FAX: 279-1476

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APPENDIX III

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM CONSISTENCY DETERMINATION

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM FEDERAL CONSISTENCY EVALUATION PROCEDURES

1. Chapter 161, Beach and Shore Preservation.

The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed project is not located in a beach area. Therefore, the project would not apply to this chapter.

2. Chapters 186 and 187, State and Regional Planning.

These chapters establish the State Comprehensive Plan which sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: This project will be coordinated with the Tampa Bay Regional Planning Council and the State Clearinghouse. Therefore, this project would comply with the intent of this Chapter.

3. Chapter 252, Disaster Preparation, Response and Mitigation.

This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The dredging and placement would be consistent with the intent of this Chapter.

4. Chapter 253, State Lands.

This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The dredging and placements would not affect state lands. The proposal would comply with the intent of this chapter.

5. Chapters 253, 259, 260, and 375, Land Acquisition.

This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Since the affected property already is in public ownership, this chapter would not apply.

6. Chapter 258, State Parks and Aquatic Preserves.

This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed work would not affect any parks or preserves, and would, therefore, be consistent with this chapter.

7. Chapter 267, Historic Preservation.

This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The construction of the wetlands has been coordinated with the Florida State Historic Preservation Officer. Procedures will be implemented to avoid affects on unidentified historic properties, which may be located within the affected areas. Additional precautions during construction will be implemented should new resources be un-covered. Therefore, the work will be consistent with the goals of this chapter.

8. Chapter 288, Economic Development and Tourism.

This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The proposed work does not impact any economic development or tourism. Therefore, the work would be consistent with the goals of this chapter.

9. Chapters 334 and 339, Public Transportation.

This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: The work does not impact public transportation. Therefore, the work would comply with the goals of this chapter.

10. Chapter 370, Saltwater Living Resources.

This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fisherman and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The work would enhance the saltwater resources in the Palm River by the creation of 8 acres of wetland habitat, the improved water circulation of the channel and by the creation of some shallow-water habitat. Therefore, the work is consistent with the goals of this chapter.

11. Chapter 372, Living Land and Freshwater Resources.

This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions that provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The placement of material in the channel would enhance resources covered by this Chapter. Therefore, the work would comply with the goals of this chapter.

12. Chapter 373, Water Resources.

This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This work does not involve water resources as described by this chapter.

13. Chapter 376, Pollutant Spill Prevention and Control.

This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: This work does not involve the transportation or discharging of pollutants.

14. Chapter 377, Oil and Gas Exploration and Production.

This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This work does not involve the exploration, drilling or production of gas, oil or

petroleum product and therefore, does not apply.

15. Chapter 380, Environmental Land and Water Management.

This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development.

Response: The construction is being coordinated with the local regional planning commission. Therefore, the work would be consistent with the goals of this chapter.

16. Chapter 388, Arthropod Control.

This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The work would not further the propagation of mosquitoes or other pest arthropods.

17. Chapter 403, Environmental Control.

This chapter authorizes the regulation of pollution of the air and waters of the state by the DEP.

Response: A permit application is being prepared for the project. Final compliance would come with the permit modification. Therefore, the work is complying with the intent of this chapter.

18. Chapter 582, Soil and Water Conservation.

This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the work. Particular attention will be given to work on or near agricultural lands.

Response: The proposed work is not located near or on agricultural lands and would therefore, this chapter would not apply.

APPENDIX IV

ESSENTIAL FISH HABITAT DETERMINATION

**ESSENTIAL FISH HABITAT ASSESSMENT
PALM RIVER - TAMPA BYPASS CANAL
RESTORATION**

1. The Tampa Bypass Canal, C-135, was authorized by the Flood Control Act of October 23, 1962 as part of the Four River Basins Project. A study was authorized under Section 1135 of the Water Resources Development Act. The description of the project and its impacts are in the attached Feasibility Report and Draft Environmental Assessment.
2. The Palm River Restoration Project would not have any significant adverse impact on habitat as identified as EFH. The proposed project would actually benefit fisheries in Tampa Bay by providing 8 acres of adjacent wetlands and increased tidal flushing of the Palm River. Impacts to the aquatic environment are identified in Section 4, Environmental Consequences of the Environmental Assessment. We consider these impacts to be minimal on an individual project and cumulative affects basis.

APPENDIX V

SECTION 404(B)(1) EVALUATION

PALM RIVER RESTORATION SECTION 404(b)(1) EVALUATION DREDGED MATERIAL

I. Project Description

- a. **Location.** The Palm River discharges into McKay Bay in the northeast of the Tampa Bay system, Hillsborough County, Florida. Prior to the 1920's, the two dredged channels now known as the Tampa Bypass Canal and the Palm River were a continuous channel known as Six Mile Creek (HDR Engineering 1994). Where it entered McKay Bay, the Palm River was about 650 feet wide. The river's channel width varied from 200 to 400 feet for about three-fourths of a mile upstream from the mouth before rapidly narrowing to less than 100 feet.
- b. **General Description.** Severe flooding associated with heavy rains in the spring of 1960 prompted the development of the Four River Basins Flood Control Project, for the Oklawaha, Withlacoochee, Peace and Hillsborough River basins. The Tampa Bypass Canal and the Palm River were components of that project. When the Corps dredged Six-Mile Creek that became the Palm River, the dredged material was placed in several sites adjacent to the river in the floodplain. Dredging and spoil disposal dramatically altered the habitats in and adjacent to Six-Mile Creek
- c. **Authority and Purpose.** The Tampa Bypass Canal, C-135, was authorized by the Flood Control Act of October 23, 1962 as part of the Four River Basins Project. Restoring some of the habitats lost to the project is the purpose of this project.
- d. **General Description of Dredged or Fill Material**
 - (1) **General Characteristics of Material.** The fill material is former dredged material excavated from the adjacent Six-Mile Creek and floodplain.
 - (2) **Quantity of Material.** Approximately 217,000 cubic yards of fill material would be excavated from the adjacent berm area and placed in the littoral zone.
 - (3) **Source of Material.** The material will be excavated from adjacent berm.
- e. **Description of the Proposed Discharge Site.**
 - (1). **Size and Location.** Sites 1, 2, and 3 are located along the north shoreline of the Palm River. The fill area foot print for all three sites would be approximately 32 acres.

(2). Type of Site. The area to be filled is part of the Palm River that is part of the Tampa Bypass Canal.

(3). Type of Habitat. The type of habitat is a deep canal with steep side slopes.

(4). Timing and Duration of Discharge. There is no specific timing for the discharge.

f. Description of Disposal Method. The discharge would likely be conducted with either a clamshell bucket or by pushing the berm material into the canal with either a bulldozer or front-end loader.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The canal side slope drops to about 20 feet deep. There is little shallow water along the channel banks.

(2) Sediment Type. Sediment analysis of the disposal site indicates that the bottom is composed of a layer of silt and fine-grained sand.

(3) Dredged/Fill Material Movement. The dredged material is not likely to movement because it is a low energy area and the channel acts as a sediment trap for silty material.

(4) Physical Effects on Benthos. Placement will result in the loss of deep-water benthic organisms at the placement site. These communities will reestablish quickly upon completion of work. Disruption of marine life at the placement area will be short term.

(5) Other Effects. Fisheries at or near the disposal area should not experience substantive adverse effects. Standard manatee construction conditions will be required of all contractors. The work as proposed will not jeopardize protected species. No known historical properties will be affected by this project. The proposed work will result in some temporary disruption of normal vessel traffic in the canal. Temporary degradation in water quality at the placement sites will also occur. The long-term benefits would occur from the creation of 8 acres of wetlands and additional shallow-water habitat.

(6) Actions Taken to Minimize Impacts. The standard manatee protection conditions would also be employed to reduce potential for impacts.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

- (a) Salinity. No impacts to salinity at disposal site.
- (b) Water Chemistry. There will be no changes in water chemistry at the site.
- (c) Clarity. There will be a temporary increase in turbidity level at the disposal site and immediately adjacent to the disposal area during the disposal operations.
- (d) Color. Due to the minor silt content, there will be a brown turbidity plume associated with the discharge operations.
- (e) Odor. There would be no odor problems associated with the placement since the material contains few organics and would not be exposed to the air.
- (f) Taste. Not applicable.
- (g) Dissolved Gas Levels. There would be improved water quality at the site from the increased dissolved oxygen levels.
- (h) Nutrients. There should be no nutrients in the material.
- (i) Eutrophication. No eutrophication is anticipated.

(2) Current Patterns and Circulation. There would be no impacts on circulation from the discharge.

(3) Normal Water Level Fluctuations. Not applicable.

(4) Salinity Gradients. Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts. The placement area will be operated to maintain state water quality standards.

III. Suspended Particulate/Turbidity Determinations

- a. Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. No changes are anticipated because the fill material is sandy material

containing few fines.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration would be reduced during placement operations. This would be short-term in duration and would not cause any significant adverse effects.

(b) Dissolved Oxygen. There would be no reduction in dissolved oxygen levels from the discharge of the sandy dredged material.

(c) Toxic Metals and Organics. No toxic materials are anticipated to be encountered.

(d) Pathogens. Not Applicable.

(e) Aesthetics. There will be an increase in noise levels and aesthetic degradation from the presence and operation of heavy equipment at the placement sites.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. No photosynthesis occurs at this site.

(b) Suspension/Filter Feeders. Little or no impact is expected.

(c) Sight Feeders. Little or no impact is expected.

(4) Actions taken to Minimize Impacts. None required.

b. Contaminant Determinations. No contaminants have been previously encountered and therefore none are anticipated.

c. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton. No significant effects.

(2) Effects on Benthos. No significant benthic populations are located in the

placement sites and therefore no significant adverse impacts are anticipated.

(3) Effects on Nekton. None are anticipated.

(4) Effects on Aquatic Food Web. There would be increased long-term productivity of the area from restoring 20.3 acres of wetland habitat.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. Not applicable.

(b) Wetlands. There would be an increase of 20.3 acres of wetland habitat as a result of this project.

(c) Mud Flats. Not applicable.

(d) Vegetated Shallows. None would be affected.

(e) Coral Reefs. Not applicable.

(f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. Manatees could be affected.

(7) Other Wildlife. Not applicable.

(8) Actions to Minimize Impacts. The standard manatee protection conditions would be implemented.

d. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. No mixing will likely occur due to the sandy nature of the dredged material and the small quantity of fines associated with the material.

(2) Determination of Compliance with Applicable Water Quality Standards. Monitoring of the discharge site will be conducted to insure State standards are met.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. Not applicable.

- (b) Recreational and Commercial Fisheries. There would be a long-term benefit to recreational fisheries from the creation of 8 acres of wetland habitat.
- (c) Water Related Recreation. Not applicable.
- (d) Aesthetics. The proposed discharge would increase noise and scenic degradation during disposal operations.
- (e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Not applicable.
- e. Determination of Cumulative Effects on the Aquatic Ecosystem. Since the bottom substrate is silty, the placement of an irregular sandy substrate would provide additional diversity to the area.
- f. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

APPENDIX VI

COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS.

1. National Environmental Policy Act of 1969, as amended. Environmental information on the project has been compiled in the Final Environmental Assessment (EA). Comments about the proposed work were initially gathered as a result of a Scoping Letter dated May 25, 1999 sent to the public at large. The Draft EA will be coordinated with the public for 45 days. After the comments are received, the design of this project will be finalized. The public coordination and environmental impact assessment complies with the intent of NEPA. The process will fully comply with the Act once the Findings of No Significant Impact has been signed by the District Commander.

2. Endangered Species Act of 1973, as amended and Fish and Wildlife Coordination Act of 1958, as amended. Consultation with the US Fish and Wildlife Service under Section of the Endangered Species Act was conducted in conjunction with the preparation of the Coordination Act Report and Biological Opinion for this project (Appendix I). The USFWS provided a draft CAR dated 22 February 2001. The USFWS concluded that the work would not likely jeopardize the continued existence of the manatee, if the Standard manatee protection conditions are implemented.

To minimize potential impacts to the manatee, the Service recommends that the following be made special conditions of the permit, if issued:

- The standard manatee construction conditions be included in any contract issued for the work, and/or in the final Corps NEPA document, and implemented by all crew personnel.

RESPONSE: Concur.

- Education pertaining to the manatee, including appearance, behavior, and actions which constitute a "taking" under the ESA be made a part of crew training.

Response: Concur

- The use of hydraulic dredge, especially in the winter months.

RESPONSE: We cannot dictate the use of any piece of equipment as per our contracting regulation.

- If a clamshell dredge is used in the winter months, we recommend its use during daylight hours only.

Response: We have since agreed to place a dedicated observer on all clamshell operations and monitor manatee movements/impacts with video equipment.

This project was fully coordinated under the Endangered Species Act; therefore, this project is in full compliance with the Act. The USFWS has prepared a Draft CAR for the project and stated the work will not have significant long-term affects on fish and wildlife resources and therefore, does not object to this action. Therefore, the project is in compliance with the Act.

3. National Historic Preservation Act of 1966, as amended (PL 89-665). Coordination with the Florida State Historic Preservation Officer (SHPO) has been conducted in accordance with the procedures contained in 36 CFR Part 800 under the authority of the National Historic Preservation Act of 1966. The SHPO in a letter dated June 8, 1999, identified 4 sites located in the vicinity of the project area and recommended they be avoided. The Jacksonville District, U.S. Army Corps of Engineers (COE) under contract conducted a cultural resources survey of the Palm River restoration area. The survey relocated one of the sites, 8HI76, but the site has been previously destroyed by development and erosion and the other three sites are outside project boundaries. No new sites were discovered by the survey. However, the areas beneath the berms were not investigated due to the amount of overburden. If cultural resources are discovered during construction activities, procedures under 36 CFR Part 800.13 will be initiated. The Florida Division of Historical Resources responded to coordination by letter dated July 15, 2002, stating that based on a study conducted by New South Associates, that the proposed work would not affect specifically, Site 8HI76 or any other historic property, or any historic property eligible for the National Register of Historic Places. The Jacksonville District COE, through coordination with the SHPO, has fulfilled its responsibilities and is in compliance with Section 106 of the NHPA and with the Archeological and Historic Preservation Act.

4. Clean Water Act of 1972, as amended.

- 4.1. **Section 401. (Water Quality)** A Florida Department of Environmental Protection (DEP) Water Quality Certificate (WQC) will be required for this project. Application for a WQC will be made to the FDEP prior to construction. State water quality standards will be adhered to during construction. The project will cause temporary increases in turbidity where filling and dredging area taking place. The Florida water quality regulations require that water quality standards not be violated during dredging operations. The State standards for turbidity outside the designated mixing zone shall not exceed 29 NTU's above background. Various protective measures and monitoring programs will be conducted during construction to ensure compliance with State water quality standards.
- 4.2. **Section 404 (b)(1).** The purpose of Section 404(b)(1) of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the waters of the United States through the control of discharges of dredged or fill material. Controls are established through restrictions placed on the discharges in Guidelines published in 40 CFR 230. An evaluation of the dredged material was conducted (Appendix VI). The impacts are addressed in the Environmental Assessment and are primarily related to a minor increases in turbidity levels adjacent to the placement and dredging areas.
- 4.3. **Tier I Evaluation.** Based on the probable impacts addressed in the environmental assessment, the 404(b)(1) evaluation and Inland Testing Manual requirements concerning the dredged material to be used, the proposed work would comply with the Guidelines and the intent of Section 404(b)(1) of the Clean Water Act.

5. **Clean Air Act of 1972, as amended.** No air quality permits will be required for this project. Therefore, this Act would not be applicable.
6. **Coastal Zone Management Act of 1972, as amended.** The project has been evaluated in accordance with Section 307 of the Coastal Zone Management Act. It has been determined that the project would have no unacceptable impacts and would be consistent with the Florida Coastal Zone Management Plan (Appendix V). Final state concurrence is issued concurrently with the issuance of the Water Quality Certification.
7. **Farmland Protection Policy Act of 1981.** No prime or unique farmland will be impacted by implementation of this project. This act is not applicable.
8. **Wild and Scenic River Act of 1968, as amended.** No designated Wild and Scenic river reaches will be affected by project related activities. This act is not applicable.
9. **Marine Mammal Protection Act of 1972, as amended.** Incorporation of the safe guards used to protect manatees during dredging and disposal operations will be implemented during construction, therefore, this project is in compliance with the Act.
10. **Estuary Protection Act of 1968.** No designated estuary will be affected by project activities. This act is not applicable.
11. **Federal Water Project Recreation Act, as amended.** There is no recreational development proposed for maintenance dredging or disposal. Therefore, this Act does not apply.
12. **Resource Conservation and Recovery Act of 1976, (PL 94-580; 7 U.S.C. 100, et seq.** This law has been determined not to apply as there are no items regulated under this act being disposed of or affected by this project.
13. **Toxic Substances Control Act of 1976, (PL 94-469; U.S.C. 2601, et seq.** This law has been determined not to apply as there are no items regulated under this act being disposed of or affected by this project.
14. **E.O. 11990, Protection of Wetlands.** No wetlands will be affected by project activities. This project is in compliance with the goals of this Executive Order.
15. **E.O. 11988, Floodplain Management.** The proposed work would not adversely affect floodplain characteristics, therefore this project is in compliance with the goals of this Executive Order.
16. **E.O. 12898, Environmental Justice.** This project has been evaluated in accordance with

the subject E.O. The project would not result in adverse human health or environmental effects. There would be no impacts on subsistence consumption of fish or wildlife from this project. Therefore, the work would comply with this E.O.

- 17. Essential Fish Habitat, Magnuson-Stevens Fishery Conservation and Management Act.** The affects of the existing federal navigation project have been identified in the Environmental Assessment. The effects on EFH is being coordinated with the NMFS through the NEPA process.

APPENDIX VII

HTRW ASSESSMENT

MARCH 1999

Hazardous, Toxic and Radioactive Waste (HTRW) Assessment

**PRE-CANAL CONSTRUCTION RESTORATION
PALM RIVER RESTORATION PROJECT
Hillsborough County,
Florida**



**U.S. Army Corps
of Engineers
Jacksonville District**

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1.1 SUMMARY

A preliminary site assessment was conducted for the Palm River Restoration Project. Three potential sites may be excavated to an elevation more typical of pre-canal construction, to approximately 1 foot NGVD and contoured to create several meandering inlets. The hazardous and toxic waste (HTRW) review of the proposed sites did not reveal evidence of HTRW contamination.

1.2 INTRODUCTION

1.2.1 Purpose

The goal of this site investigation is to identify recognized environmental conditions. The investigation indicates the presence or likely presence of any hazardous substances or petroleum products. The assessment attempts to reveal conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products on the properties or into the ground, groundwater, or surface water of the properties.

1.2.2 Special Terms and Conditions

The recognized environmental conditions that were considered throughout this investigation included hazardous substances or petroleum products in compliance with laws. The term, environmental contamination is not intended to include de minimis conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

1.2.3 Limitations and Exceptions of Assessment

This Phase I Environmental Site Assessment is composed of the following five components: 1) Records Review, 2) Aerial Photography Study, 3) Site Reconnaissance, 4) Interviews, 5) Report. The record review, aerial photography study, site reconnaissance, and interviews are used in concert with each other.

1.2.4 Limiting Conditions and Methodology Used

There were no limitations imposed by physical obstructions etc. The site visit conducted 27 January 1999 revealed that the sites are located along the northern bank of the Palm River. The sites have limited access, surrounded by industrial activity.

1.3 SITE DESCRIPTION

1.3.1 Vegetation

A site reconnaissance and review revealed that natural vegetation covered the proposed sites. No distressed vegetation was observed.

1.3.2 Soils

The sites consist of sandy soil typical to Hillsborough County. No discolored soil was observed.

1.3.3 Location and Legal Description

The three proposed sites for the Palm River Restoration are located in Hillsborough County, Florida as shown on the maps in appendix A1.

1.3.4 Descriptions of Structures, Roads, Other Improvements on the Site (including Heating and cooling system, sewage disposal, Potable water Source)

The Southwest Water Management District manages the Palm River Project area. There are no structures, roads or other improvements located on the proposed project areas. The aerial photography shows the Palm River with respect to the site locations. See aerial photographs in appendix A3, A4 and A5.

1.3.5 Information (if any) Reported by Auditor Regarding Environmental Liens or Specialized Knowledge or Experience

No specialized knowledge is available for these sites.

1.3.6 Current Uses of the Property

The site visit of 27 January 1999 indicated that the sites were previously used as a dredged material disposal area, which was covered by natural vegetation with limited access.

1.3.7 Past Uses of the Property (to the extent identified)

Prior to using these sites as dredged material disposal sites, it is believed that these sites were part of the river bank.

1.3.8 Current and Past Uses of Adjoining Properties (to the extent identified)

By all indications observed throughout the site investigation, the adjoining properties are light industry. The sites are surrounded by the following: roads, the Palm River, and natural vegetation. See appendix A3, A4 and A5.

1.3.9 Site Rendering, Map, or Site Plan

See Appendix A1.

1.4 RECORDS REVIEW

1.4.1 Standard Environmental Records Sources, Federal, State, and/or Local.

Several database searches were performed and the results were plotted to the proposed area project maps. Appendix A2 shows these potential contaminated sites. The following databases were included in the review: National and State Priority Listed Sites, landfills, Federal and State Conservation Environmental Restoration Comprehensive Liability Act (CERCLA) listed sites, listed violators, underground storage tanks

(UST's) and leaking underground storage tanks (LUST), Treatment Storage and Disposal facilities (TSD's), listed spills, Small (SQG) and Large Quantity Generators (LQG), Transporters and aboveground storage tanks (AST's). As shown in appendix A2 contaminants and activities prone to contamination are not on or immediately adjacent to the proposed sites.

1.4.2 Physical Setting Source(s)

The quadrangle map A1 and aerial photograph A3, A4 and A5 indicate that the sites have limited access although they are located in an industrial part of town. Photographs of the sites and their surrounding area are presented in appendix A6, A7 and A8.

1.4.3 Historical Use Information

No information is available concerning historical use for the sites. However, prior to using the sites for dredged material disposal, the land was part of the river bank.

1.4.4 Additional Record Sources

None

1.5 INFORMATION FROM SITE RECONNAISSANCE AND INTERVIEWS

Mr. Peter Besrutschko, Jacksonville District, US Army Corps of Engineers (Corps) performed the site investigation on 27 January 1999. Access to the sites is limited. The sites are surrounded by light industrial facilities.

1.5.1 Hazardous Substances in Connection with Identified Uses (including storage, handling, disposal)

There is no evidence that the tanks shown in appendix A2, have caused a release of hazardous and/or toxic materials into the environment

which would have migrated to the sites. The closest tanks are on the north side of the main highway, which is located one quarter of a mile north of the site.

**1.5.2 Hazardous Substance Containers and
Unidentified Substance Containers (including
storage, handling, disposal)**

No hazardous substance containers and unidentified substance containers were observed.

**1.5.3 Storage Tanks (including contents and
assessment of leakage or potential for leakage)**

No storage tanks were observed on the sites.

**1.5.4 Indications of PCBs (including how contained
and assessment of leakage or potential for
leakage)**

Not applicable.

1.5.5 Indications of Solid Waste Disposal

No recorded or physical data yielded any indications that the disposal of sanitary solid waste has occurred at the sites at any time.

**1.5.6 Physical Setting Analysis, if migrating
Hazardous Substances are an issue**

Migration of hazardous substances off-site is not a likely concern because the adjacent properties are well maintained or consist of re-growth vegetation.

1.5.7 Any Other Conditions of Concern

No other conditions of concern.

1.6 FINDINGS AND CONCLUSIONS

A Phase I Environmental Site Assessment was conducted in conformance with the scope and limitations of ASTM Practice E 1527; of the proposed dredge material disposal sites located in Hillsborough County, Florida. The site visit, conducted 27 January 1999, found the site to be free of hazardous and toxic materials and waste. The proposed dredged material disposal sites have limited access, although they are surrounded by diverse land-use congestion.

In summary, the proposed dredged material disposal sites were found to be free of any hazardous or toxic waste problems.

PRELIMINARY ASSESSMENT SCREENING (PAS) STATEMENT OF FINDINGS

REAL PROPERTY TRANSACTION: Preliminary site assessments were conducted on the proposed dredged material disposal sites. These sites may be used to dispose of dredged materials taken from the Palm River.

SUMMARY:

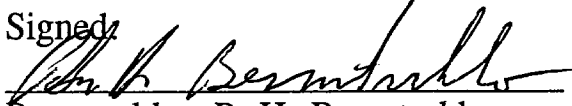
COMPREHENSIVE RECORD SEARCH: Several database searches were performed and the results were plotted to the proposed area project maps. Appendix A2 shows these potential contaminated sites. The following databases were included in the review: National and State Priority Listed Sites, landfills, Federal and State Conservation Environmental Restoration Comprehensive Liability Act (CERCLA) listed sites, listed violators, underground storage tanks (UST's) and leaking underground storage tanks (LUST), Treatment Storage and Disposal facilities (TSD's), listed spills, Small (SQG) and Large Quantity Generators (LQG), Transporters and aboveground storage tanks (AST's). As the map shows, no hazardous or toxic waste was present on the proposed dredged material disposal sites.

SITE INVESTIGATION: Mr. Peter Besrutschko, Jacksonville District, US Army Corps of Engineers (Corps) performed the site investigation on 27 January 1998. Access to the site is limited because

there is no direct road access. The site investigation revealed no evidence of hazardous and/or toxic materials release. The adjacent properties were found to be diverse congestion of light industry and some re-growth vegetation.

In conclusion, the proposed dredged material disposal sites were found to be free of any hazardous and toxic waste.

Signed:



Date:

11 March 99

Prepared by: P. H. Besrutschko

Environmental Engineer, US Army Corps of Engineers

Signed:



Date:

17 Mar 99

Reviewed by: J. J. McAdams, P.E.

Chief, Env. Quality Section, US Army Corps of Engineers

Signed:



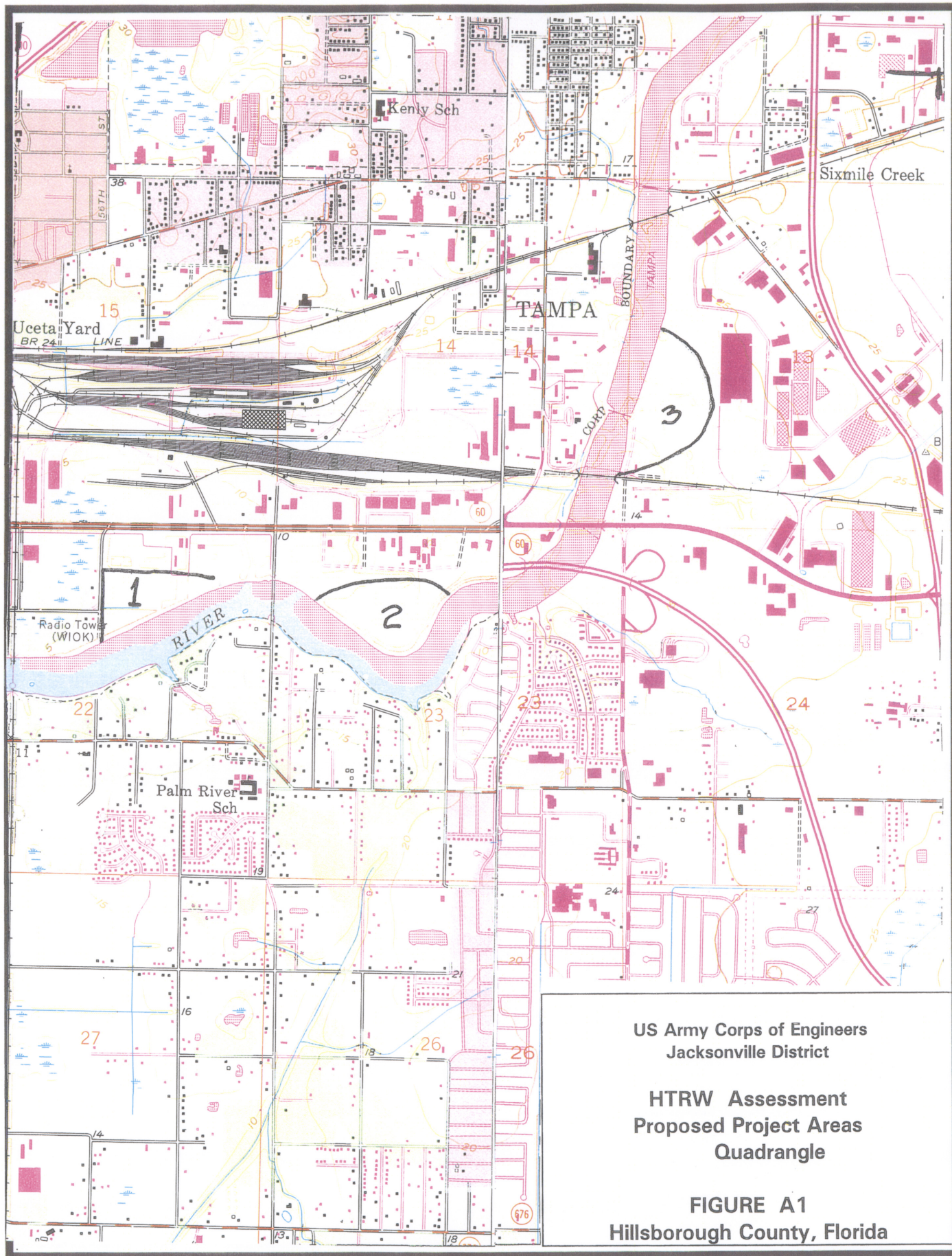
Date:

31 Mar 99

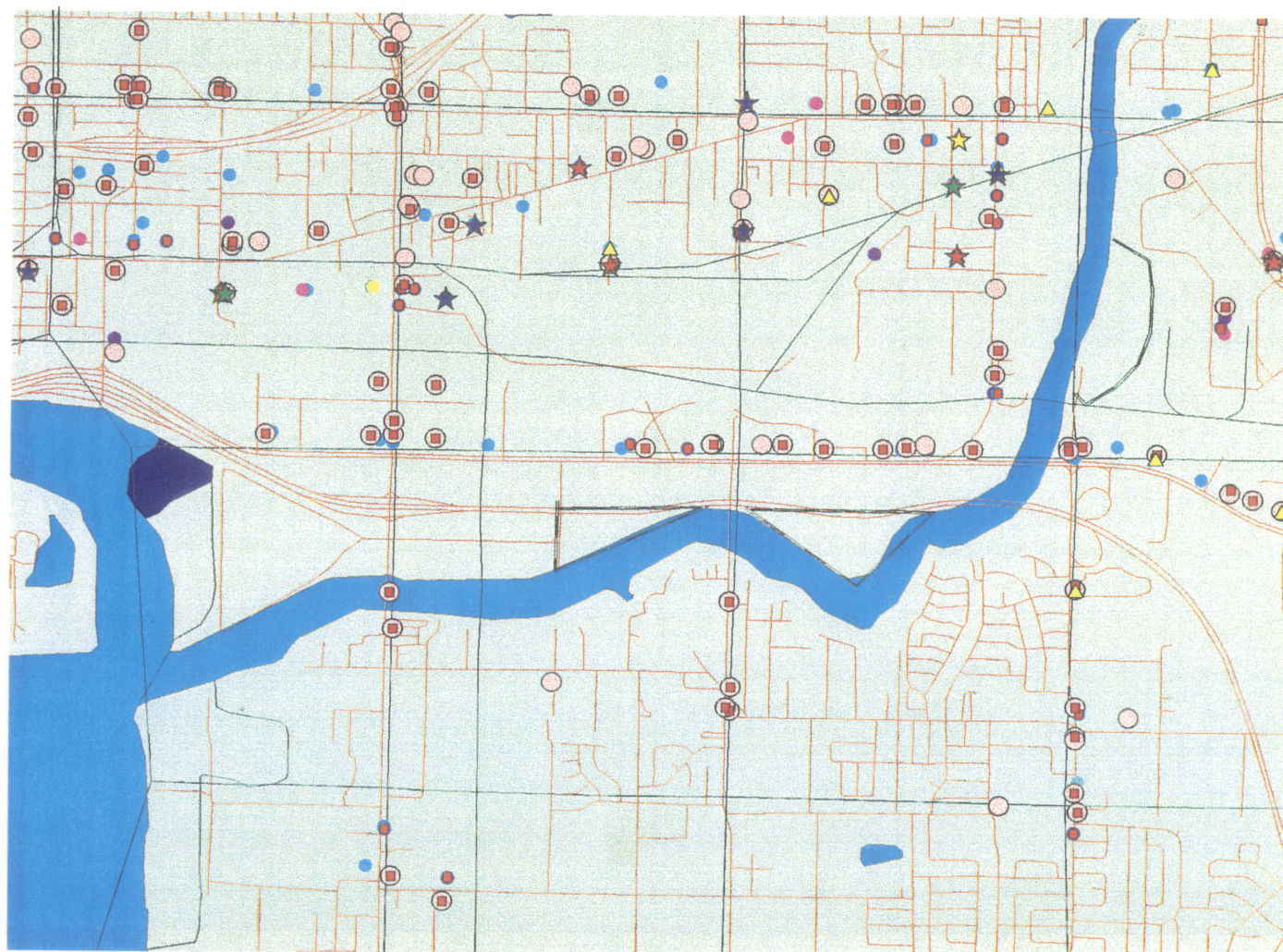
Approved by: H.K. Smith

Chief, Env. Resources Branch, US Army Corps of Engineers

1.7 APPENDICES



Palm River Proposed Project Area Hazardous and Toxic Waste Database Review



- ∧ Rail_tig
- ★ Stat_prior Ist.shp
- ★ Landfill.shp
- ★ Nat_prior.shp
- ★ Cercla Ist.shp
- ▲ Violator.shp
- Ust_leak.shp
- Ust.shp
- Tsd_fac.shp
- Tsd_cor_action.shp
- Transporter.shp
- Stat_cercla Ist.shp
- Spills.shp
- SmaI_gener.shp
- Recra_cor_action.shp
- Large_gener.shp
- Abovgnd.shp
- Roads
- Sections
- Hydro
- land
- water
- wetland

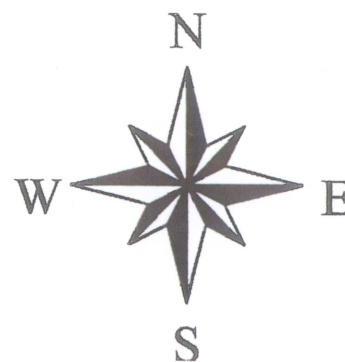
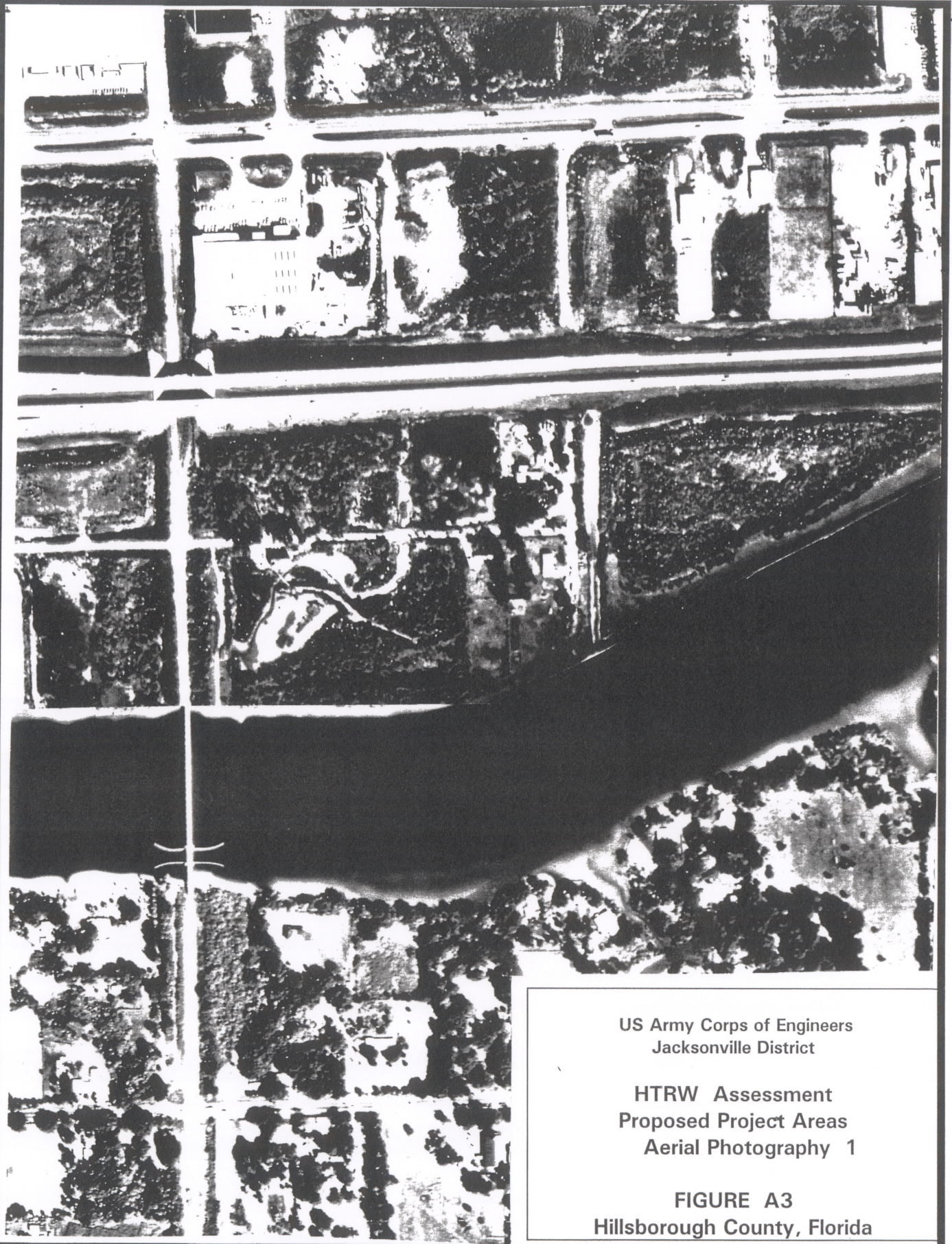


FIGURE A2



US Army Corps of Engineers
Jacksonville District

HTRW Assessment
Proposed Project Areas
Aerial Photography 1

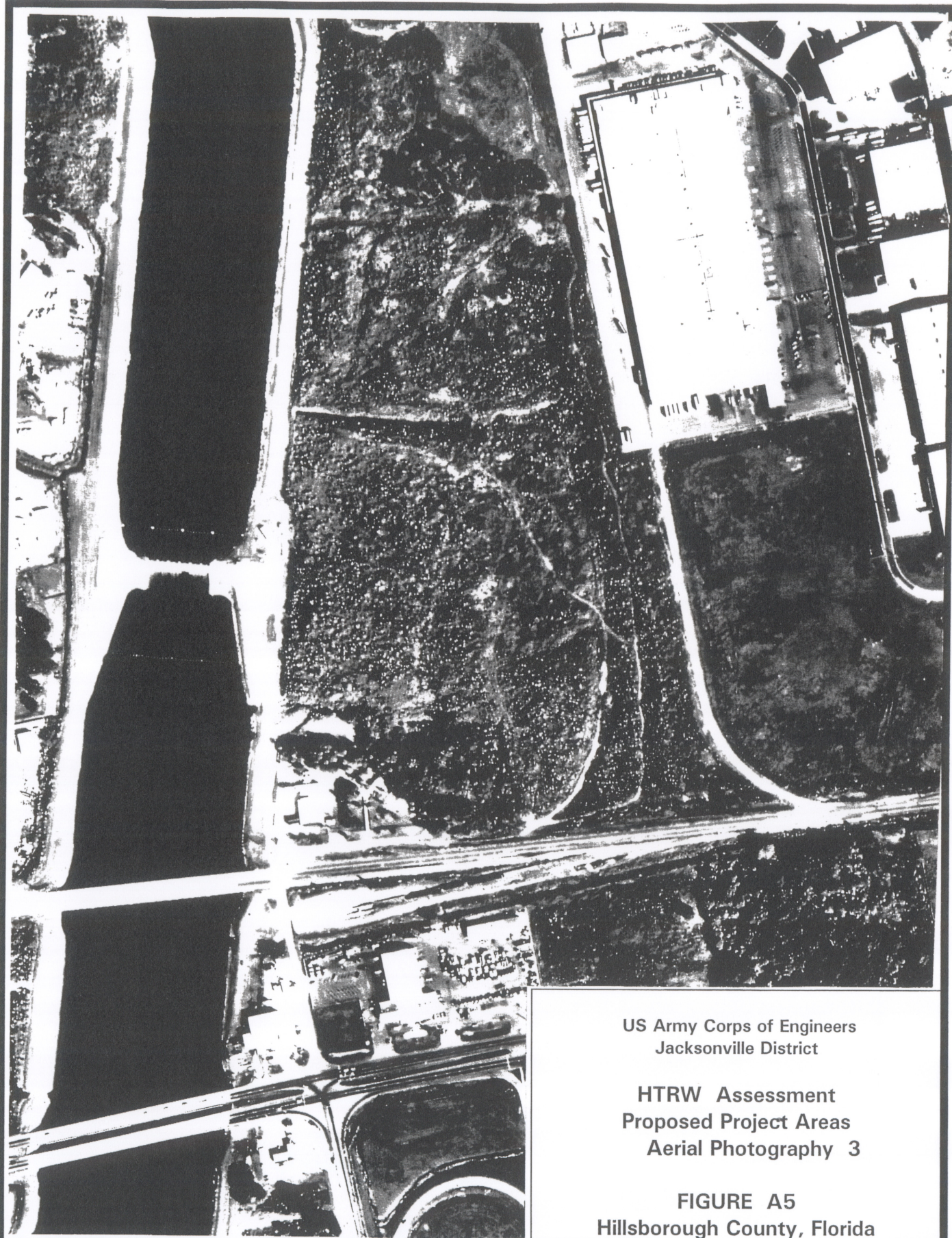
FIGURE A3
Hillsborough County, Florida



US Army Corps of Engineers
Jacksonville District

HTRW Assessment
Proposed Project Areas
Aerial Photography 2

FIGURE A4
Hillsborough County, Florida



US Army Corps of Engineers
Jacksonville District

HTRW Assessment
Proposed Project Areas
Aerial Photography 3

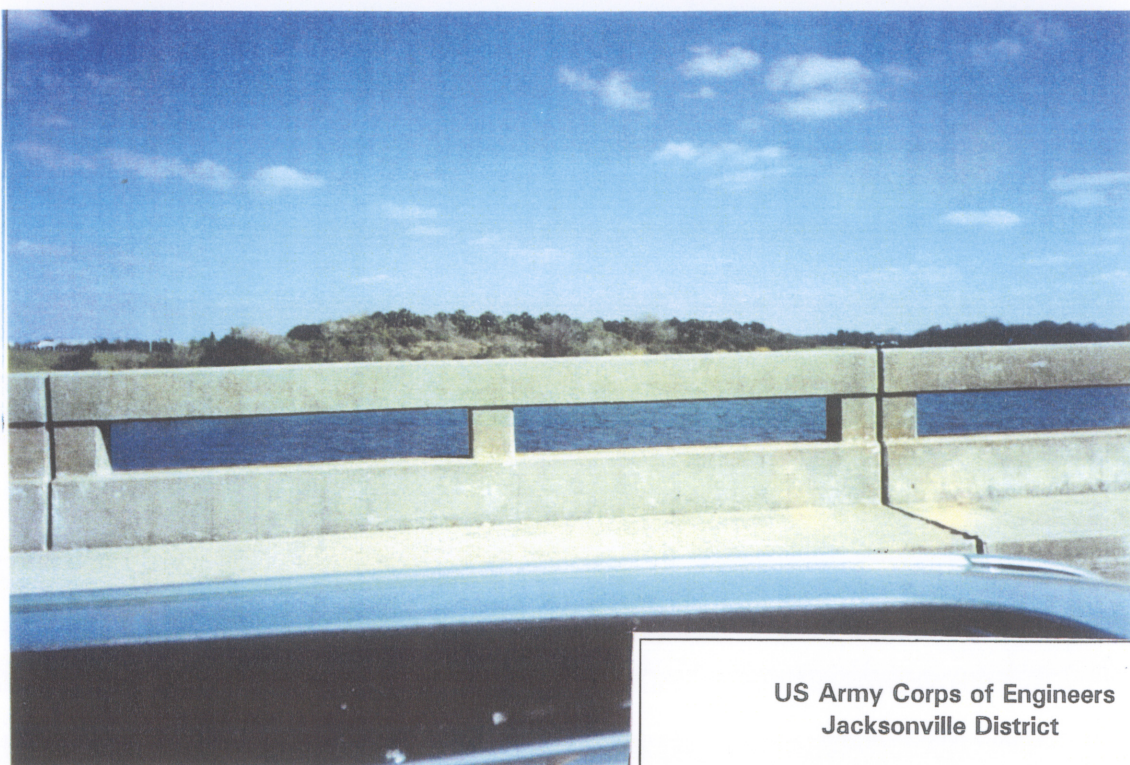
FIGURE A5
Hillsborough County, Florida



US Army Corps of Engineers
Jacksonville District

HTRW Assessment
Proposed Project Areas
Photography

FIGURE A6
Hillsborough County, Florida



US Army Corps of Engineers
Jacksonville District

HTRW Assessment
Proposed Project Areas
Photography

FIGURE A7
Hillsborough County, Florida



**US Army Corps of Engineers
Jacksonville District**

**HTRW Assessment
Proposed Project Areas
Photography**

**FIGURE A8
Hillsborough County, Florida**